Hallowell
Acadia: Combined Heating and Cooling System

INSTALLATION MANUAL

We Encourage Professionalism

Through Technician Certification by NATE

HALLOWELL INTERNATIONAL

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Note! This is intended as a quick reference for use during setup of a Hallowell Acadia. This is NOT to be considered a complete installation manual. Prior to setup of a Hallowell Acadia it is necessary to read ALL of the included installation manual.

NOTE TO INSTALLER: THIS MANUAL SHOULD BE LEFT WITH THE EQUIPMENT USER.

Please Check (☑) as Completed

AIR HANDLER

☐ Install indoor air handler, ensuring proper duct sealing, insulation & distribution.

☐ Ensure appropriate electrical disconnect size is installed.

☐ Install air filter.

☐ Ensure condensate drain is installed properly.

☐ Place thermostat in a location where it will not be exposed to direct airflows from doors, windows, etc.

☐ Run 10-conductor (minimum), 18 AWG control wiring from thermostat to air handler, and from air handler to outside condenser unit.

☐ Connect control wiring following color codes provided in the install manual, Appendix B.

☐ Disconnect leads from the transformer provided in air handler from the air handler control board 24 VAC and Common terminals.

☐ Connect 24VAC and 24C provided from outdoor unit to the ¼" terminals labeled COM and 24VAC on the indoor AHU control board (seen in Appendix A, FIG1).

☐ Set airflow jumpers in air handler in accordance with Appendix A.

THERMOSTAT

☐ Install thermostat in a location where it will not be directly exposed to conditioned air, or drafts from doors and/or windows.

☐ Configure thermostat settings as indicated in the install manual, Appendix A.

OUTSIDE CONDENSER UNIT

☐ Ensure that jumper between W2 and W/E is NOT installed on the thermostat.

☐ Ensure proper clearances are observed around the unit, making sure to provide appropriate space for accessibility.

☐ Ensure condenser is placed on appropriate snow stands (not blocks) per climate region with a minimum of 12" clearance.

☐ Ensure coil drainage holes are not obstructed.

☐ Ensure both 7/8" vapor and 3/8" liquid lines are fully insulated.

☐ Ensure both 7/8" vapor and 3/8" liquid service valves are open (open/back seated).

☐ Ensure system has been properly evacuated to 500 microns.

☐ Ensure transformer is wired appropriately for applied line voltage. For correct wiring, see Line Voltage diagram in Appendix B. Unit is factory wired for 230VAC.

☐ Ensure the 10 conductor, 18AWG, control harness has been correctly wired between the thermostat, indoor air handler, and outdoor unit, following color codes and schematics provided in the install manual, Appendix B.

☐ Ensure electrical disconnect is properly sized for outdoor unit.

☐ After applying power, ensure electrical ratings are within specifications.

☐ Verify control board heartbeat is active.

☐ Ensure initial charge is added as a liquid to 3/8" service valve port. FINAL CHARGE (if required) is to be added through ¼" charging port.

☐ Ensure all electrical connections are weather tight.

☐ Ensure all cabinet and electrical fasteners are secure.Shipping vibration can loosen connections.

☐ Ensure control wiring is not chaffing/grommet is installed.

DANGER Outdoor condenser unit is heavy. Take appropriate precautions and use appropriate equipment to move and install.

Remove from literature packet and place in customer file at dealership.
Date Installed: _____

NOTE: read the entire installation instruction manual before starting the installation.

Customer Name: _____
Address: _____
City, State: _____
Zip Code: _____
Outdoor Unit Model No.:_____
Outdoor Unit Serial No.:_____
Accessories: _____
Accessories: _____
Home Phone No.: (___)_____
Business Phone No.: (___)_____
Indoor Coil Model No.:_____
Indoor Coil Serial No.:_____
Air Handler Model No.:_____
Air Handler Serial No.:_____
Check the following items when they apply to this installation:
Dual Fuel_____Hydronic_____Other_____
Check equipment for shipping damage.
Note Damages: _____
Locate and level unit on specified pad and snow legs.
See Instructions under install on a solid, level mounting pad and clearance.
Elevate unit to ensure proper drainage and snow clearances.
_____
Check for proper indoor TXV size. TXV shipped with indoor unit must be used. _____
Check for proper duct sizing, sealing, and installation._____
Check that duct work is insulated and all registers are open and not blocked._____
Ensure proper line set sizes are used and are properly insulated.
See Installation Instructions under make piping connections section and refrigerant connections._____
Install filter dryer. _____
Install proper wire size and fuse/circuit breaker. Consult NEC and/or local codes for recommended wire size and fuse/circuit breaker.
Connect power and control wiring connections.
See installation instructions under make electrical connections section and 24-v circuit connection figures._____
Power Supply Voltage:_____Volts
Control Voltage: _____Volts
Open 7/8" and 3/8" service valves_____
Ensure that both 7/8" and 3/8" line sets are fully insulated._____
Evacuate line set and indoor and outdoor unit per Installation Instructions._____
Piping connections section._____
Add initial charge: See installation instructions under check charge section._____
Use superheat/sub cooling charging procedure and appropriate charging tables in installation instructions or on unit labels.
_____
Check refrigerant connections for leaks._____
Suction Pressure: _____Outdoor Temperature: °F_____
Discharge Pressure: psig_____
Indoor Temperature: °F_____
Superheat at outdoor coil: °F_____
Sub cooling at outdoor unit: °F_____
Check factory tubing to ensure tubes are not rubbing against each other or any sheet metal. Pay close attention to feeder tubes on both indoor and outdoor coils._____
Ensure wire ties are tight._____
Check factory wires and wire connections to ensure terminations are secured properly. See wiring label on unit for proper wiring identification._____
Check wire routing to ensure wires are not in contact with sheet metal edges._____
Check wire routing around fan motor to ensure wires will not come in contact with fan blades._____
Check field wiring for proper support, terminations, and grounding._____
Check unit charge and adjust accordingly._____
Run unit in cooling, heating. _____
Before leaving job, ensure that all panels and covers are securely fastened and that service valve stem caps are tightened.
Ensure all work areas are clean._____
Leave user's manual with owner._____

*Installer Note Section:*_____

CONTENTS

Owners Manual	1
Description of Operation	3
Performing Routine Maintenance	5
Regular Dealer Maintenance	6
Troubleshooting	7
Installation & Start-Up Instructions	8
Step 1 Check Equipment and Job Site	8
Step 2 Install	8
Step 3 Clearance Requirements	9
Step 4 Indoor Expansion Device	9
Step 5 Piping Connections	10
Step 6 Electrical Connections	11
Step 7 Start Up	12
Step 8 Check Charge	13
Step 9 Final Checks	14
Appendix A	15
Appendix B	20
Appendix C	24
Appendix D	26

The Acadia

Recognize safety information, symbols and words:

⚠DANGER Will identify serious hazards which will result in severe personal injury or death.

⚠CAUTION Will identify unsafe practices which would result in minor personal injury or product and property damage.

NOTE is used to highlight suggestions which will result in enhanced installation, reliability, or operation.

IDENTIFYING YOUR SYSTEM

Take the time to familiarize yourself with the type of system you have. This knowledge will be of use in understanding the basic operation of your new heat pump. The type of heat pump you have purchased is a split system multi-stage all climate model.

The split-system type has an indoor and an outdoor unit, each of which contains a coil. These units are interconnected by refrigerant tubes. Each unit has a rating plate affixed to it which provides necessary information for specific identification of a unit. You should familiarize yourself with the product, model, and serial numbers listed on each rating plate. Record them for future reference on the last page of this booklet.

IMPORTANT FACTS

To better protect your investment and to eliminate unnecessary service calls, familiarize yourself with the following facts:

- Your heat pump system should never be operated without a clean air filter properly installed. Plan to inspect the filter periodically.
- A clogged air filter will increase operating costs by reducing efficiency and could potentially impact system durability.
- Supply-air and return-air registers should not be blocked. Drapes, furniture, and toys are some of the items commonly found obstructing registers. Restricted airflow lessens the unit's efficiency and life span.
- The outdoor unit must have unrestricted airflow. Do not cover the unit, lean anything against it, or stand on it. Do not allow grass clippings, leaves, or other debris to accumulate around or on top of the unit. Maintain a 12-in. minimum clearance between the outdoor unit and tall grass, vines, shrubs, etc.
- Your Hallowell indoor thermostat is the control center for your heat pump system. You should familiarize yourself with its proper operation and comfort settings. Attempting to control the system by other means—for instance, switching the electrical supply power ON and OFF—may cause damage to the unit.
- You may find that you can maintain greater personal comfort by running the fan continuously. Air pockets can form due to the structure of the house, placement of registers, etc. These air pockets may be too cool or warm for your liking. Continuous fan operation minimizes any temperature differences. Also, systems equipped with electronic or mechanical air cleaners and/or humidifiers offer the added benefits of having the air continuously cleaned year-round and humidified during the winter season.
- A system equipped with a heat or energy recovery ventilator offers the advantage of exhausting stale air from the home and allowing fresh air in from the outdoors while minimizing heat loss.

TYPICAL SPLIT-SYSTEM INSTALLATION

Your heat pump will remove humidity from your home during the cooling season. After a few minutes of operation, you should be able to see water trickle from the condensate drain of the indoor cooling coil. Check this occasionally to be sure the drain system is not clogged. Of course, don't expect to see much drainage if you live in a very dry environment.

During the heating cycle, air from your registers may seem cooler than you might first expect. This is because your heat pump delivers a constant flow of air at around 95°F to 130°F instead of in sudden bursts of hot air as with a conventional furnace. This air may feel cool because it is slightly less than your skin temperature. However, it is sufficiently warm to keep you comfortable.

- Ice or frost will tend to form on the outdoor coil during the winter heating operation. Your heat pump is designed to automatically melt the ice. When in this defrost cycle, it is normal for steam or fog to rise from the outdoor unit. Do not be alarmed!
- Do not operate your unit in cooling mode when outdoor temperatures are below 50°F.
- It is not recommended that your unit be operated in heating mode when outdoor temperatures are above 82°F.

OPERATING YOUR HEAT PUMP

The operation of your heat pump system is controlled by the indoor thermostat. You simply adjust the thermostat and it maintains the indoor temperature at the level you select. Most thermostats for heat pump systems have three controls: a **TEMPERATURE** control selector, a **FAN** control, and a **SYSTEM** or **MODE** control. The temperature control selector is set of buttons that allows you to establish the temperature that you wish to maintain for your personal comfort. Your

thermostat has two temperature control selectors: one for setting the temperature desired during cooling operation, and one for setting the temperature desired during heating operation. The **FAN** control offers 2 options for controlling the blower: **AUTO** and **ON**. When set to **AUTO**, the blower runs only when the heat pump is operating. When set to **ON** position, the blower runs continuously. Typically, the **SYSTEM** or **MODE** control on your thermostat offers the following selections: **COOL, OFF, HEAT, AUTO**, and **EMERGENCY HEAT**. Your thermostats will have a separate switch for **EMERGENCY HEAT**. The heat pump will not operate when the **SYSTEM** or **MODE** control is set to **OFF**. With the **SYSTEM** or **MODE** control set to **COOL**, your heat pump will provide cooling when the indoor temperature rises above the level you wish to maintain. With the **SYSTEM or MODE** control set to **HEAT**, your heat pump will provide warmth whenever the indoor temperature falls below the level that you have selected. The **AUTO** selection found on some thermostats provides for automatic changeover between cooling and heating. With the **SYSTEM or MODE** control set to **AUTO**, cooling operation is activated when the indoor temperature rises above the thermostat cooling temperature setting, or heating operation is activated when the indoor temperature drops below the thermostat heating setting.

Depending on your typical winter heating needs, your home comfort system may include a supplementary heating source. The **EMERGENCY HEAT** setting **(EHEAT)** provides for convenient selection between the two heating appliances. Your heat pump will operate when the **SYSTEM or MODE** control is set to **HEAT**. With the **SYSTEM or MODE** control set to **EHEAT**, the heat pump will turn off and the supplementary heat source will be activated. In certain geographic areas and in certain applications, supplemental heat is not required. Any questions regarding your application should be directed to your dealer. Your thermostat may be either a **PROGRAMMABLE** or **NONPROGRAMMABLE** unit. A **NON-PROGRAMMABLE** thermostat does not allow the temperature settings to be varied throughout the day or week without physically changing the settings. A **PROGRAMMABLE** thermostat allows various daily temperature changes to be preset. During the winter, for example, you may wish to "set back" the temperature of your home at night, then have the temperature return to normal prior to waking up. The home's temperature can then be lowered again during the day when no one is at home, but again be at peak comfort level when your family returns home. During the summer, the opposite changes might be programmed. When properly used, the programming can result in energy savings on your home's heating and cooling. If you wish to program your accessory electronic indoor thermostat, please refer to thermostat owner's manual.

FOR MULTI-STAGE UNIT INSTALLATIONS: Your heat pump system has several special features built in to protect the unit.

- 5-MINUTE TIME DELAY—Unit will delay operation upon initial start-up or short-cycling of the indoor thermostat.
- 2-MINUTE TIME DELAY—When changing capacity from low to high, or high to low, there is a 2-minute time delay. During the capacity change delay, the outdoor fan will continue to run. During this time, the discharge air from your ducting may be lower than desired. This is normal and is not a cause for alarm. The discharge air temperatures will rise when the unit has settled into its new heating/cooling capacity.

COOLING MODE

When operating in cooling mode, your heat pump will run in cooling mode until the indoor temperature is lowered to the level you have selected. On extremely hot days, your heat pump will run for longer periods at a time and have shorter off periods than on moderate days. The following are typical conditions that add extra heat and/or humidity to your home. Your heat pump will work longer to keep your home comfortable under these conditions:

- Entrance doors are frequently opened and closed.
- Laundry appliances are being operated.
- A shower is running.
- More than the usual number of people are present in the home.
- More than the normal number of electric lights are in use.
- Drapes are open on the sunny side of the home.

HEATING MODE

With the **SYSTEM or MODE** control of your indoor thermostat set to **HEAT**, your heat pump will run in heating mode until room temperature is raised to the level you have selected. Of course, your heat pump will have to operate for longer periods to maintain a comfortable environment on cooler days and nights than on moderate ones.

SUPPLEMENTAL HEAT

Your heat pump is your primary heating source. Your system may also be equipped with a supplemental heating source such as electric, gas, or oil. On extremely cold days and nights, your system will automatically turn on the supplemental heat in order to maintain the level of comfort your have selected.

DEFROST MODE

When your heat pump is providing heat to your home and the outdoor temperature drops below 45°F, moisture may begin to freeze on the surface of the outdoor coil. If allowed to build up, this ice would impede airflow across the coil and reduce the amount of heat absorbed from the outside air. So, to maintain energy-efficient operation, your heat pump has an automatic defrost mode.

Defrost will start at the preset time only if the ice is sufficient to interfere with normal heating operation. After the ice is melted from the outdoor coil, or after a maximum of 8 minutes in defrost mode, the unit automatically switches back to normal heating operation. The fan will resume normal operation. Do not be alarmed if steam or fog appears at the outdoor unit during defrost mode. Water vapor from the melting ice may condense into a mist in the cold outside air. During certain weather conditions such as heavy snow and freezing rain it is not uncommon for ice to build up on the outdoor unit grill. This is normal for these weather conditions. ***Do not attempt to remove the ice from the outdoor unit grill.*** This condition will not affect the proper function of the unit and will clear overtime.

During Defrost Mode any supplemental heating system installed will be brought online to maintain the thermostat setpoint. At the completion of a defrost cycle, the supplemental heating will be taken offline, and the outdoor unit will run for 3 minutes, regardless of a call from the thermostat for heating. Depending on the outdoor conditions at the time of a defrost, this may result in lower than normal discharge air temperatures until normal operation is resumed. This is normal operation, and is not cause for alarm.

EMERGENCY HEAT MODE

The emergency heat **(EHEAT)** setting on your electronic thermostat can be used to turn off your heat pump and use only the supplemental heating source (if equipped). The **EMERGENCY MODE** will be displayed while your system is operating in **EHEAT** mode. Emergency heat is not normally used. There may be situations, however, when it is necessary, such as when your heat pump requires servicing. If the electricity to your heat pump has been off for more than 30 minutes, switch your thermostat to **EHEAT** mode before restarting your heat pump. Leave the system in **EHEAT** mode for an amount of time equal to the power outage. It is not necessary to exceed 12 hrs. If you cannot determine how long the power has been off, leave the system in **EHEAT** mode for 8 hrs.

NOTE: Read this entire instruction manual before starting the installation.

DESCRIPTION OF OPERATION

The Hallowell Acadia is a multi-stage heat pump, capable of operating efficiently in a wide range of temperatures and conditions. A multi-stage thermostat is used in conjunction with sensors built into the outdoor unit to safely and efficiently provide the appropriate level of heating/cooling capacity for the given situation.

Under normal operation, the system operates as follows.

OUTDOOR FAN OPERATION

The outdoor fan will continuously operate with any Y1 or Y2 input signal from the thermostat. During Defrost Mode, the outdoor fan does not run, with the exception of a 10 second purge to allow for removal of water droplets from the outdoor coil at the end of the defrost cycle.

REVERSING VALVE OPERATION

The thermostat controls the heat pump mode (heat or cool) using the O input signal on the controller. The controller will energize the reversing valve, placing the unit into Cooling mode whenever the O input signal is energized. The controller will also energize the reversing valve through the integrated defrost logic.

MODES OF OPERATION

The Hallowell Acadia System has 4 modes of heating, and 2 modes of cooling. Each mode of is assigned a level of capacity for the entire system. Descriptions of these modes, as well as the conditions under which each is selected are explained in this section.

The 4 modes of operation for the Acadia system are:

Mode	Capacity
M1	Single cylinder primary compressor
M2	Two cylinders primary compressor
M3	Primary and booster compressors
M4	Primary and booster compressors with 1st stage auxiliary heat

HEATING MODE OPERATION

The appropriate system mode of operation for heating is determined by a combination of the Y1 and Y2 input calls from the thermostat, and the outdoor air temperature (ODT) sensed by the outdoor unit. The outdoor air temperature is broken into 7 temperature ranges, called Bins, labeled A through G. These temperature Bins and subsequent system operations are assigned as follows:

System Heating Modes

Heating Call at Thermostat	Y1	Y2
BIN A: ODT < -30	W1	W1
BIN B: -30 ≤ ODT < 15	M3	M4
BIN C: 15 ≤ ODT < 25	M2	M3
BIN D: 25 ≤ ODT <34	M2	M2+W1
BIN E: 34 ≤ ODT <41	M2	M2
BIN F: 41 ≤ ODT <62	M1	M2
BIN G: 62 ≤ ODT	M1	M1

Y1 = Stage One call at thermostat.
Y2 = Stage Two call at thermostat.

COOLING MODE OPERATION

The appropriate system mode of operation for cooling is determined by the level of demand from the thermostat, Y1 and Y2, and the outdoor air temperature. Cooling mode is limited to operation when the outdoor air temperature is above 50 °F to ensure correct operation of all components in the system. System operating modes are identical to those used in heating. The table below illustrates the cooling operating modes utilized as the outside air temperature varies and calls from the thermostat change.

System Cooling Modes

	Outside Air Temperature	
Cooling call at Thermostat	< 49F	> 50F
Y1	N.A.	M1
Y2	N.A.	M2

Y1 = Stage One call at thermostat.
Y2 = Stage Two call at thermostat.
N.A. = Not available, compressors for cooling should not be running at this point.

MODE TRANSITIONS

When the thermostat calls for additional heating or cooling capacity (Y1 to Y2), the Acadia requires that the new capacity call exist for a period of 3 minutes to ensure the compressors are not being cycled unnecessarily. An anti-short-cycle lockout is also built into the system to ensure the system does not turn on and off too frequently causing unnecessary wear to the components. During heating or cooling operation, if it is necessary for the unit to switch from M1 to M2, or from M2 to M1, the compressor will shut off for a period of 2 minutes before coming online in the new mode of operation. This is a delay that is engineered into the system to allow pressures to equalize and ensure the compressors start efficiently. If the outdoor air temperature changes Bins the Acadia requires the air temperature to remain in the new Bin for a period of 5 minutes before potentially changing modes. If the thermostat reduces the call from Y2 to Y1 the system will also stage back, allowing more continuous operation in the more efficient mode.

DEFROST MODE OPERATION

The Hallowell Acadia is specifically designed to limit the accumulation of frost or ice that may cause poor performance or unnecessary wear to the unit. To accomplish this, during normal operation when the control senses a buildup of ice on the outdoor coil, a defrost cycle is initiated. During this defrost cycle it is normal for an installed auxiliary heating method to turn on to assist in supplemental heating. A defrost cycle is terminated if the system has either A) run in defrost for 8 minutes, or B) reached a safe and dry coil temperature. During a defrost cycle it is also normal for the fan on the outdoor unit to turn off, assisting in ice and frost removal. At the completion of a defrost cycle, to prevent damage to the outdoor unit, it is necessary for the outdoor unit to continue running in M2 for 3 minutes, regardless of the state of inputs from the thermostat. This may result in lower than usual discharge air temperatures from the indoor air handler for a short period of time until the correct heating mode can be re-established.

BUILT-IN SAFETY FEATURES

The Hallowell Acadia has many built-in features to protect the system from damage from a variety of problems. The unit will self-monitor its operating conditions and attempt to solve operating problems on its own before needlessly alerting the home owner of any potential problems. If the unit determines maintenance is required it will alert the home owner by sending a TROUBLE code to the thermostat while simultaneously engaging emergency heat, if necessary.

High pressure/ Low pressure switch: If system refrigerant pressures reach unsafe high or low levels the Hallowell Acadia will automatically stop running for 10 minutes to allow pressures to return to safe levels. After this time-out the Acadia will begin operation again in its last mode.

Inter stage temperature sensor: If the inter stage temperature reaches a level that is too high the Hallowell Acadia will automatically stop running for 10 minutes to allow this temperature to return to a safe level. After this time-out the Acadia will begin operation again in its last mode.

3 minute anti-short cycle: The Hallowell Acadia has a built-in timer which prevents needless cycling of the compressors and maximizes the life of the unit. The compressors may not be turned on within 3 minutes of turning off.

Minimum / Maximum operating temperature monitor: A temperature monitor is built in to the Hallowell Acadia which ensures the optimum performance of the unit. In cooling mode the unit may not operate if the temperature is below 50 °F and in heating mode it may not operate if the temperature is above 82 °F.

Internally fused control circuits: The Hallowell Acadia control board has an on-board replaceable fuse to protect the board and control circuit in the event of a power surge. This precaution ensures the safety of the unit and minimizes the maintenance expenses.

Circuit breaker protected system transformer: The transformer in the Hallowell Acadia has an internal circuit breaker to add additional protection to the components in the unit, as well as the air handler in the home of the owner.

Advanced defrost algorithms: The Hallowell Acadia has a proprietary control system to monitor and control defrosts, only engaging a defrost mode when necessary. This additionally prevents unnecessary cycling of the

compressors, and maximizes unit runtime keeping the home comfortable, and operating costs low.

NOTE: If the system is not entering defrost mode at the appropriate times, a jumper is provided on the control board to initiate a Manual Defrost. Once put in place, the jumper will cause the system to go into a defrost cycle every 45 minutes regardless of the actual need for defrost. This is intended as a back-up method to be used only when absolutely necessary, such as while awaiting new temperature sensors. See Figure 4 in Appendix A for jumper location.

INDOOR AIR HANDLING UNIT

Any Hallowell approved indoor air handling unit (AHU) in your Hallowell Acadia system is designed to alter the airflow leaving it based upon the heating or cooling capacity required by the entire system. As a result, the system will have an increased airflow leaving the ductwork during different operating modes, both in heating and cooling, providing you with the most comfortable & efficient air delivery.

FOR MULTI-STAGE UNIT INSTALLATIONS:

2-MINUTE TIME DELAY: When changing capacity from low to high, or high to low, there is a 2-minute time delay. During the capacity change delay, the outdoor fan will continue to run. During this time, the discharge air from your ducting may be lower than desired. This is normal and is not a cause for alarm. The discharge air temperatures will rise / fall when the unit has settled into its new heating/cooling capacity.

PERFORMING ROUTINE MAINTENANCE

With the proper maintenance and care, your heat pump will operate economically and dependably. Maintenance can be accomplished easily by referring to the following directions. However, before performing maintenance, consider these important safety precautions.

- Disconnect all electrical power to the indoor air handler before removing access panels to perform any maintenance. Disconnect power to both the indoor and outdoor units.

DANGER There may be more than one electrical disconnect switch. Electric shock can cause personal injury or death.

CAUTION Although special care has been taken to minimize sharp edges in the construction of your unit, be extremely careful when handling parts or reaching into the unit. Failure to follow this caution could result in minor personal injury or product and property damage.

CAUTION Unit is under high pressure: Do not use any sharp objects that could potentially puncture piping or the coil.

CHECK THE AIR FILTER

A dirty air filter will cause excessive strain on the compressor and blower motor. This can cause the components to overheat and automatically shut down. In the worst case, the components will fail and need to be replaced. To avoid inefficient or failed operation of your unit, **CHECK THE FILTER(S) EVERY 3 TO 4 WEEKS.** Replace filter(s) when necessary. Disposable filters should be replaced by similar, new filters of the same dimensions.

Reusable, permanent filters should be washed in a solution of cold water and mild detergent, then rinsed and thoroughly dried. **THE FILTER MUST BE COMPLETELY DRY BEFORE BEING REINSTALLED**. To avoid prolonged shutdown of your unit while a filter is drying, you should have an extra filter on hand. This allows you to rotate between the two with minimal downtime for your comfort system. Extra filters may be purchased from your dealer. There are no filters in the outdoor unit of a split system.

Your system includes an indoor fan coil unit; the filter is located in the unit where it connects with the return-air duct or plenum. Remove the filter cover plate by sliding latches toward center of plate. Lift filter to clear lower flange. Filter is spring-loaded and will pop out. Reinstall filter, being certain to secure filter behind lower flange. When reinstalling cover plate, secure plate behind upper flange then slide tabs outward.

The indoor fan coil unit may be located in the attic. In this instance the filter may be located behind the return air grill. Access the filter by removing the return air grill. If your system includes a high efficiency or electronic air cleaner, refer to air cleaner User's Manual for proper filter cleaning or replacement.

INDOOR COIL

If the indoor coil has only been operated with a clean filter in place, it should require minimal cleaning. If coil cleaning is required, call your dealer for service. It may be necessary to clean the coil with a detergent solution and rinse it with water. This could require the removal of the coil. **You should not attempt this yourself.**

OUTDOOR COIL

If grass clippings, leaves, shrubbery, and debris are kept away from the outdoor unit, minimal care should be sufficient to keep the system functioning properly. For proper drainage, debris must be removed periodically from the base pan. However, if the outdoor coil becomes dirty, use a vacuum cleaner or shop vac with soft brush attachment to clean the exterior surface. Vacuum coil surface using an up and down motion. Be careful not to bend or damage fins. If dirt is deep in the coil, contact your dealer for service. The outdoor fan motor may have to be disconnected and the top panel re-

moved to gain access to the coil for thorough cleaning.

Do not attempt this yourself.

OUTDOOR COIL—SEA COAST

If your unit is located near the ocean, special maintenance is required. Ocean mist/breeze carries salt, which is corrosive to most metals. Although your new unit is made out of galvanized metal and is protected by top-grade paint, you should take the precaution of additional maintenance which consists of periodically washing the unit. By washing all exposed surfaces and coil, you will be adding additional life to your unit. Please consult your installing contractor or service contact for proper intervals and procedures for your geographic area.

UNIT SUPPORT

Your split-system outdoor unit should be maintained at a level position. If its support should shift or settle so that the unit is no longer level, you should correct the condition. Re-level it promptly to assure water drains out of the unit. If you notice that water or ice collects beneath the unit, arrange for it to be drained away from the unit. ***Heat pumps installed in snow-belt areas should be elevated with support feet or a snow stand.***

BEFORE YOU REQUEST A SERVICE CALL CHECK FOR THESE EASILY SOLVED PROBLEMS:

- Check the indoor and outdoor disconnect switches. Verify that circuit breakers are **ON**.
- Check for sufficient airflow. Check the air filter(s) for any accumulations of dirt. Check for blocked return-air or supply air registers. Be sure registers are open and unobstructed.
- Check the settings on your indoor thermostat. If you desire cooling, make sure that the temperature control selector is set below room temperature and the **SYSTEM or MODE** control is set to **COOL or AUTO**. If you require warmth, make sure that the temperature control selector is set above room temperature and the **SYSTEM or MODE** control is set to **HEAT or AUTO**. The **FAN** control should be set to ON for continuous blower operation or **AUTO** if you wish blower to function only while your heat pump is operating.
- Check note concerning special features and time delays in "Operating Your Heat Pump" section. If your comfort system still fails to operate, place the thermostat in Emergency Heat mode (if heating is required) and contact your servicing dealer for troubleshooting and repairs. Do **NOT** shut off power to the unit as this will hamper troubleshooting efforts. Specify your apparent problem, and state the model and serial numbers of your equipment. (You should have them recorded on the last page of this booklet.) With this information, your dealer may be able to offer helpful suggestions over the phone or save valuable time through knowledgeable preparation for the service call.

REGULAR DEALER MAINTENANCE

In addition to the routine maintenance that you perform, your home comfort system should be inspected regularly by a properly trained service technician. The inspection (preferably twice each year, but at least once every year) should include the following:

- Routine inspection of air filter(s). Replacement or cleaning as required.
- Inspection and cleaning of the blower wheel, housing, and motor as required.
- Inspection and, if required, cleaning of indoor and outdoor coils.
- Inspection of the indoor coil drain pan, plus the primary and secondary drain lines. If supplied, the auxiliary drain pan and line should be inspected at this time. Service should include cleaning if required.
- A check of all electrical wiring and connections.
- A check for secure physical connections of individual components within unit.
- Operational check of the heat pump system to determine actual working condition. Necessary repair and/or adjustment should be performed at this time.

TROUBLESHOOTING

Your Hallowell Acadia has been designed from the ground up utilizing industry-proven components from only the best manufacturers to give you years of trouble-free operation.

In the event, however, that your Hallowell Acadia fails to operate in the correct manner, please take the following steps prior to contacting your installer.

1. Ensure the thermostat does not display a TROUBLE or MAINTENANCE REQUIRED indicator. If either of these are displayed, contact your installer immediately, and do NOT shut off power to the unit.

2. Check to ensure the unit has power by verifying that all appropriate disconnects and/or fuses/breakers are in the ON position.

3. Verify the thermostat is not in the OFF setting.

CONTROL ERROR CODES

In the event of a failure in the outdoor unit, the control has a built in diagnostic LED for troubleshooting purposes. **Appendix A, Figure 4** shows the location of the diagnostic LED on the Acadia control board. During normal operation this LED fades on, and blinks off continuously. If for any reason the unit has encountered an error condition, the error may be diagnosed using the error table below.

Status Indicator Sequence	System Status
Fade In, Fast OFF	Normal Operation
1 Flash, OFF for 3 Seconds	Control Board Watchdog Reset
2 Flashes, OFF for 3 Seconds	Power Brownout Reset
3 Flashes, OFF for 3 Seconds	System Pressure Safety
5 Flashes, OFF for 3 Seconds	System Pressure and Current Safety
6 Flashes, OFF for 3 Seconds	System Temperature Sensor Fault
7 Flashes, OFF for 3 Seconds	Control Board Hardware Fault

If the Hallowell Acadia has encountered an operational error, the outdoor unit will shut down for a period of 10 minutes, after which it will attempt to restart in its last known operating mode. If the unit is able to restart and run for 30 continuous minutes without an error, all error codes will be cleared and normal operation shall continue. If, however, this attempt to restart fails, the outdoor unit will shut down for another 10 minutes. If a third error occurs within 30 minutes of the original error, the unit will shut down all operation and activate a **MAINTENANCE REQUIRED** output. This should cause a **TROUBLE** indicator to be displayed on the thermostat, signifying the need to contact a qualified installer or technician.

In the event the Acadia system does not change modes of operation correctly, or is displaying the temperature sensor fault code, using a multi-meter and the table below check for appropriate resistance on each temperature sensor. While checking resistance, be sure to unplug the temperature sensors from the control board, with the system power shut off. See Figure 10 in Appendix B for temperature sensor plug location.

Resistance Vs Temperature	
Temperature (°F)	Resistance (Ω)
-40	84.21
-30	86.41
-20	88.61
-10	90.81
0	93.01
10	95.2
20	97.38
30	99.57
40	101.74
50	103.9
60	106.06
70	108.22
80	110.38
90	112.53
100	114.68
110	116.82
120	118.97
130	121.1

Tolerances		
Temperature	± Tolerance	
°F	°F	Ω
-100	1.1	0.3
0	0.7	0.2
32	0.6	0.1
100	0.7	0.2

SAFETY CONSIDERATIONS

Improper installation, adjustment, alteration, service, maintenance, or use can cause explosion, fire, electrical shock, or other conditions which may cause death, personal injury, or property damage.

Consult a qualified installer, service agency, or your distributor for more information, or assistance. The qualified installer or agency must use factory-authorized kits or accessories when modifying this product. Refer to the individual instructions packaged with the kits or accessories when installing.

Follow all safety codes. Wear safety glasses, protective clothing, and work gloves.

Use quenching cloth for brazing operations to protect sys-

tem components.

Have fire extinguisher available. Read these instructions thoroughly and follow all warnings or cautions included in literature and attached to the unit. Consult local building codes and National Electrical Code (NEC) for special requirements.

Recognize safety information, symbols and words:

⚠DANGER Will identify serious hazards which will result in severe personal injury or death.

⚠CAUTION Will identify unsafe practices which would result in minor personal injury or product and property damage.

NOTE is used to highlight suggestions which will result in enhanced installation, reliability, or operation.

INSTALLATION RECOMMENDATIONS NOTES:

1. Position unit away from windows, patios, decks, etc. where the unit's operational sound may disturb customer.
2. Ensure that vapor and liquid tube diameters are appropriate to capacity of unit and that both lines are well insulated.
3. Run refrigerant tubes as directly as possible by avoiding unnecessary turns and bends, keeping tubes the shortest length possible to reduce refrigerant charge amount and increase efficiency.
4. When passing refrigerant tubes through the wall, seal the opening with RTV or other pliable silicon-based caulk and insulate.
5. Avoid direct tubing contact with water pipes, duct work, floor joists, wall studs, floors, walls, brick, or other construction material.
6. Do not suspend refrigerant tubing from joists and studs with a rigid wire or strap which may come in direct contact with tubing.
7. When necessary, use hanger straps which conform to shape of tubing insulation.
8. Isolate hanger straps from insulation by using metal sleeves bent to conform to shape of insulation.
9. Insulate both the 7/8"vapor line and the 3/8" liquid lines separately so both will have their own insulation. The Acadia uses waste heat on the 3/8" liquid line at lower temperatues. That is why we must insulate.
10. Ensure that tubing insulation is pliable, sealed with tape or glue and completely surrounds the **Vapor**, and the **Liquid** tubes separately.
11. Maximum line set length is 50', consult factory if other.
12. Maximum vertical rise 10', consult factory if other.

IMPORTANT: Maximum liquid-line size is 3/8–in O.D. for all residential applications. The 3/8-in tube must be insulated separately from the Vapor line.

⚠CAUTION USE ONLY R410A RATED SERVICE EQUIPMENT

⚠CAUTION Only install the factory-supplied heat pump (bi-flow) liquid line filter drier on the liquid line at the indoor unit. This is to help prevent heat loss during heating operation. The filter drier must be insulated. Obtain replacement bi-directional R410A rated filter driers from your local supply distributor.

INSTALLATION:

Step 1—Check Equipment and Job Site

⚠DANGER Outdoor condenser unit is heavy. Take necassary precautions and use appropriate equipment to move and install.

UNPACK UNIT

Move to final location. Remove carton, taking care not to damage unit.

INSPECT EQUIPMENT

File claim with shipping company prior to installation if shipment is damaged or incomplete.

Step 2—Install on a Solid, Level Mounting Pad or Foundation Rack

See Appendix D, Figure 14 for appropriate mounting configurations of the outdoor unit.

ELEVATE UNIT

NOTE: Accumulation of water and ice in base pan may cause equipment damage. Elevate unit per local climate and code requirements to provide clearance above estimated snowfall level and ensure adequate drainage of the unit. Use snow stands in areas where prolonged freezing temperatures are encountered. Ensure that outdoor coil drainage holes are not obstructed by snow stand. Ensure the mounting pad will not shift or swell from seasonal frost heaves.

- The unit must be placed on a secure, and level mounting pad or rack to prevent movement due to frost or ice build-up and to allow for proper system drainage.
- The unit must be set above the average snowfall line in the area of installation.
- Due to icing on the outdoor coil, unit must be mounted so that run off of water during defrost will not cause a safety problem when water re-freezes. *Note*: *Do not set unit so that defrost condensate will run across sidewalk.*
- Ensure the unit is not placed directly under roof drains or eaves.
- Unit must be mounted on stands to allow water to drain-out during a defrost and so that ice build up will not interfere with unit operation.
- Be sure that the mounting of the snow legs are on support rails of system and not on base pan so it will allow the water to drain out of unit during defrost.

CAUTION Do not block drainage holes under outdoor coil. Ice buildup will damage coil.

NOTE: On rooftop applications, mount on level platform or frame. Place unit above a load-bearing wall and isolate unit and tubing set from structure. Arrange supporting members to adequately support unit and minimize transmission of vibration to building. Consult local Codes governing rooftop applications.

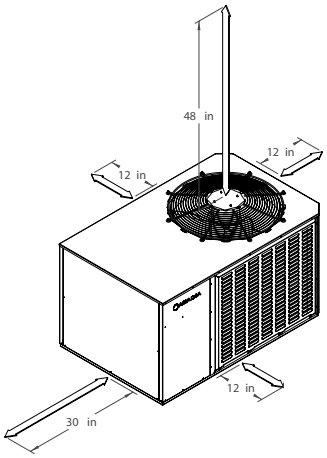
CAUTION Do not allow POE lubricant to come into contact with roofing material. POE may deteriorate certain types of synthetic roofing.

NOTE: Unit must be level to within ±3°.

Step 3—Clearance Requirements

- When installing, allow sufficient space for airflow clearance, wiring, refrigerant piping, and service.
- Allow 30-in. of clearance at the service end of unit, and 48 in. above unit for proper airflow. Allow a minimum of 12 in. on all remaining sides.
- Maintain a distance of 24 in. between units in multi-unit applications.
- Position the units so that water, snow, or ice from roof or eaves cannot fall directly on unit.
- Cover piping to insure that snow and ice will not damage the refrigerant lines, and insulation.

NOTE: On rooftop applications, locate unit at least 12 in. above roof surface.



Step 4—Check Indoor Expansion Device and Install in Air Handling Unit

For proper unit operation, reliability, and performance the units must be installed with a balance port, bi-directional heat pump TXV specifically designed to operate with R-410A. Do not install an air handler with evaporator coils having capillary tube or orifice metering devices.

AIR HANDLER INSTALLATION

NOTE: In the event the air handler was installed prior to the rest of the system, it is recommended that all air handler settings and wiring be double checked at this point.

Air handlers used with multi-stage units must be capable of operating with a minimum of 2 blower speeds. On variable speed units, ensure jumpers are placed for recommended air flow requirements. **All air handling units must be installed as specified by the manufacture's installation instructions.** However, the following recommendations should be considered to minimize noise and service problems:

- Ensure that all air registers are in the fully open position.
- Insulate and seal all ductwork.
- Ensure ductwork does not come in contact with structural building members.
- Utilize flex connections at the main ductwork supply.

IMPORTANT: An air filter must be installed upstream of the return side of the air handler.

NOTE: Improper installation of equipment may result in undesirable noise levels in living area.

Hallowell air handlers come from the factory with bi-flow TXV's specifically designed for R-410A. **Installation is required.**

IMPORTANT: If matching the outdoor unit with anything other than the Hallowell factory air handler an R-410A rated TXV must be installed. NO OTHER TYPE OF METERING DEVICE MAY BE USED! Contact the factory for any questions about sizing or applications.

IMPORTANT: The TXV should be mounted as close to the indoor coil as possible.

NOTE: If you are using the Hallowell air handler and/or TXV kit see Appendix A Hallowell TXV kit installation instructions.

Step 5—Make Piping Connections

CAUTION Relieve pressure and, or recover all refrigerant before system repair or final unit disposal to avoid personal injury or death.

NOTE: Outdoor unit is charged with nitrogen. If no nitrogen is relieved from outdoor unit, contact factory before going further. Additional steps may be required if system has lost factory nitrogen charge.

The whole system, when installed, must be evacuated to 500 microns to eliminate contamination and moisture in the system.

NOTE: OUTDOOR UNIT MUST BE CONNECTED TO FACTORY-APPROVED INDOOR UNIT. IF NOT USING A HALLOWELL AIR HANDLER CONTACT FACTORY TO VERIFY INSTALLED UNIT.

These outdoor units are carefully evaluated and listed with specific indoor coils and fans for proper system performance, efficiency and reliability.

REFRIGERANT TUBING & FILTER DRIER

NOTE: Filter drier should be placed at air handler in conditioned space to prevent heat loss. Acadia uses waste heat off the liquid line.

Installation of filter drier is required in the 3/8" liquid line at the air handler unit. Connect the liquid line from the AHU to the filter drier. Connect the other end of the filter drier to the 3/8" service valve on the outdoor unit. Note: BI-flow filter drier is required.

IMPORTANT: INSULATE FILTER DRIER AFTER INSTALLATION. TO HELP RETAIN HEAT IN THE LIQUID LINE.

PRECAUTIONS DURING LINE INSTALLATION

NOTE: Both 7/8" vapor line and 3/8" liquid must be insulated.

IMPORTANT: KEEP LINES CLEAN OF DEBRIS AND MOISTURE.

- Install the lines with as few bends as possible reducing 90 bends where possible. Care must be taken not to damage the couplings, or kink the tubing. Use ACR, hard drawn copper tubing where no appreciable amount of bending around obstruction is necessary. If soft copper must be used, care must be taken to avoid sharp bends which may cause a restriction.
- The lines should be installed so that they will not obstruct service access to the coil, air handling system, or air filter.
- Care must also be taken to isolate the refrigerant lines to minimize noise transmission from the equipment to the structure.
- The vapor line must be insulated with a minimum of ½" foam rubber insulation. The liquid line must also be insulated with a minimum of ½" foam rubber insulation.
- Use PVC or other suitable piping as a conduit for all underground installations.
- Pack fiberglass insulation and a sealing material such as permagum, or RTV around refrigerant lines where they penetrate a wall to reduce vibration and to retain some flexibility.
- Use only long radius 90° for any hard drawn copper.

SWEAT CONNECTION

CAUTION Purge line sets with nitrogen before brazing occurs to prevent internal oxidation contaminants into system.

To prevent damage to unit or service valves, observe the following:

- Use a brazing shield.
- Wrap service valves with wet cloth or use a heat sink material.
- During brazing, purge lines with nitrogen to prevent oxidation internally within the piping.
- Braze sweat connections using industry accepted methods and materials.

LEAK TESTING

Leak test all joints on indoor/outdoor units, and refrigerant tubing. Open both service valves by turning center stem fully CCW until stem reaches the top of valve.

NOTE: Ensure service valves are opened and nitrogen purge removed before evacuation.

NOTE: Outdoor unit is charged with nitrogen that must be released before evacuation.

NOTE: Both 7/8in vapor line and 3/8in liquid must be completely insulated after leak testing.

EVACUATE REFRIGERANT TUBING, INDOOR COIL, AND OUTDOOR UNIT

Use all service ports and open all flow-control devices. **Do not leave system open to atmosphere any longer than the minimum time required for installation.** POE oil in compressors is extremely susceptible to moisture absorption. Always keep ends of tubing sealed during installation and free of debris.

Refrigerant system must be evacuated and held at **500** Microns for a minimum of 15 minutes to provide thorough free air test.

IMPORTANT: Never open system under vacuum to atmosphere without first breaking vacuum with nitrogen.

The vacuum method requires a vacuum pump capable of achieving a minimum vacuum of 500 microns and a micron gauge for indication.

The vacuum method is the most effective way of assuring a system is free of air and moisture.

FINAL TUBING CHECK

IMPORTANT: Check to be certain factory tubing on both indoor and outdoor units have not shifted during shipment. Ensure tubes are not rubbing against each other or any sheet metal. Pay close attention to feeder tubes and service port stems. Check insulation on vapor and liquid lines, and make sure it is sealed properly with tape or glue.

Step 6—Make Electrical Connections

Use 18 AWG, 10 minimum conductor wire harness for control connections between the thermostat, air handler, and outdoor unit. A minimum 10 conductor 18 AWG wire harness must be used to prevent incorrect wiring of the unit.

DANGER To avoid personal injury or death, do not supply power to unit with compressor terminal box cover removed.

IMPORTANT: Keep wiring color coded according to system drawings for easy troubleshooting and standardization. For color code reference, see Figures 7-10 in Appendix B.

CAUTION Be sure field wiring complies with local and national fire, safety, and electrical codes, and voltage to system is within limits shown on unit rating plate. Contact local power company for correction of improper voltage. See unit rating plate for recommended circuit protection device.

NOTE: Operation of unit on improper line voltage constitutes abuse and could affect unit reliability. See unit rating plate. Do not install unit in system where voltage may fluctuate above or below permissible limits.

NOTE: Use copper conductors only between disconnect switch and unit.

NOTE: Install branch circuit disconnect of adequate size per NEC to handle unit starting current. Locate disconnect within sight from and readily accessible from unit, per Section 440-14 of NEC. The Acadia 42C46H requires 45A time delay fuses. The Acadia 36C35H requires 35A time delay fuses.

ROUTE GROUND AND POWER WIRES

Remove access panel to gain access to unit wiring. Extend wires from disconnect through power wiring hole provided and into unit control box. Size wires per NEC.

NOTE: The unit cabinet must have an uninterrupted or unbroken ground to minimize personal injury if an electrical fault should occur. The ground may consist of electrical wire or metal conduit when installed in accordance with existing electrical codes.

DANGER Failure to follow this warning can result in an electric shock, fire, or death.

CONNECT GROUND AND POWER WIRES

Connect ground wire to ground connection in control box for safety. Connect power wiring to indicated L1 and L2 connections using appropriately sized wire nuts. For clarification see the line voltage drawing in FIG 6 Appendix B. The 75VA transformer located in the outdoor unit is factory pre-wired for a 240VAC input. If the unit is being connected to supply voltages other than 240VAC, consult the wiring diagram in Fig 6 Appendix B.

ROUTE CONTROL WIRING

To route control wires to interior of heat pump unit it is necessary to pierce ½" rubber grommet and slide control wires into electrical cabinet of outdoor unit. While routing control wires in the heat pump unit, avoid routing across, or around the control board, as this may generate unwanted interference.

CONNECT CONTROL WIRING

NOTE: System is supplied with a 75VA transformer with control 3.7 amp breaker.

IMPORTANT: Make sure to adjust voltage leads to transformer if power is other than 240V.

IMPORTANT: Disconnect red and black leads from the air handler control transformer.

Using 18 AWG, color-coded, insulated (35C minimum) 10 or 12 conductor wire, connect the control wiring between the heat pump system components (as shown in Fig 10 Appendix B). If the distance between the thermostat and the heat pump unit is more than 100 feet (as measured by the control wiring) 16 AWG wire should be utilized to avoid unnecessary voltage drop. All wiring must be NEC Class 1 and must be separated from incoming power leads. The outdoor unit provides a maximum of 75 VA 24v for control power. To ensure correct operation of the system, the 40VA transformer located in the Indoor Air Handler must be disconnected from the supply, and properly insulated to prevent possible shorts.

Following color codes provided in Fig 7-10, Appendix B, make connections to the thermostat, air handler, and outdoor unit. Connections may be made using either ¼" female disconnects, or using strip-wire connections with the screw terminals provided.

NOTE: Ensure supplied thermostat and indoor air handlers are installed and properly wired.

NOTE: Ensure the air handler jumpers are placed in their appropriate position and that all wiring follows color code instructions.

CONFIGURING YOUR HEAT PUMP COMPONENTS

- Minimum air flow for the 42C is 1200cfm in a Y2 call. Set control jumpers in the air handler accordingly. If using factory supplied air handling unit see Fig 2 Appendix A.
- Minimum air flow for the 36C is 900cfm in a Y2 call. Set control jumpers in the air handler accordingly. If using factory supplied air handling unit see Fig 2 Appendix A.
- If electric heat is installed in AHU, be sure the air handler unit is properly configured for electric heat. If using factory supplied air handling unit see Fig 1 Appendix A.
- Set Electric Heat air flow tap to be the same as normal airflow. If using factory supplied air handling unit see Fig 3 Appendix A.
- Using the table in Fig 5 of Appendix A, program the thermostat for proper operation with the Hallowell ACHP.
- It is essential to place the jumpers as indicated on the thermostat to allow correct operation.
- Ensure the jumpers on the outdoor unit control board are in the "off" position to allow normal operation.

FINAL WIRING CHECK

IMPORTANT: Check factory wiring and wire connections to ensure terminations are secured properly. Check wire routing to ensure wires are not in contact with tubing, sheet metal, etc.

Step 7—Start-Up

NOTE: The minimum outdoor operating ambient in cooling mode is 50°F, and the maximum outdoor operating ambient in cooling mode is 125°F. The minimum allowed heating operation is - 40° F.

To prevent compressor damage or personal injury, observe the following:

CAUTION

- Do not overcharge system with refrigerant.
- Do not operate unit in a vacuum or at negative pressure.
- Do not disable low-pressure switch.
- Wear safety glasses, protective clothing, and gloves when handling refrigerant.

To prevent personal injuries wear safety glasses, protective clothing, and gloves when handling refrigerant and observe the following:

USE ONLY R410A RATED REFRIGERANT EQUIPMENT.

IMPORTANT: KEEP EQUIPMENT AND HOSES CLEAR OF DEBRIS AND MOISTURE.

CAUTION ENSURE BOTH 7/8 AND 3/8 SERVICE

VALVES ARE OPEN.

IMPORTANT: Do not vent refrigerant to atmosphere. Recover during system repair or final unit disposal.

Follow these steps to properly start up the system:

1. Close electrical disconnects to energize system and ensure system control heart beat and thermostat energizes.

   NOTE: Depending on outdoor conditions, initial charge may be reduced to be added after system start-up through ¼" charging port.

   NOTE: The outdoor unit is equipped with crank case heaters which operate when low sump temperatures occur, ensuring separation of oil and refrigerant. Ensure the crank case heaters are energized before admitting initial charge. If power has been lost, or unit has been de-energized for 4 hours or more after charge has been admitted, allow the crank case heaters to energize for a minimum of 12 hours. Not following warnings may result in compressor chattering and permanent damage to compressors.

2. After evacuation is complete, for a line set of 10 feet or less, admit an initial charge amount of 12lb of liquid R-410A to the 3/8" service valve port. The line set distance is the distance between the outdoor unit and indoor unit followed along the refrigerant lines. For line sets over 10 feet add .6oz of liquid R410A per additional foot. For example, if your line set was 20 feet; 20 – 10 = 10 additional feet.

   10 feet x .6oz/foot = 6oz.; so total charge with a 20 foot line set would be 12lb 6oz. See Line Set Chart in Fig 11 Appendix C.

3. The thermostat must be setup at this time to properly work with your Hallowell Acadia. See the tables in Fig 5 of Appendix A.

4. Set thermostat to Fan ON, ensure air flow and jumpers are placed properly, test emergency heat settings.

5. Set Fan to Auto or ON as desired, then set room thermostat to COOL or HEAT. Wait for appropriate time delay(s). Operate unit for 30 minutes after initial charge continuously ensuring the thermostat setting will not be satisfied.

   NOTE: While waiting, inspect line set security and insulation. This is a good time to double check the installation procedure.

6. Set room thermostat 10 degrees or more above or below desired room temperature allowing second stage operation while charging.

   NOTE: Do not allow temperature settings to be reached until charge is complete. Open doors and windows if necessary while charging to ensure this condition. Be sure the set point is above indoor ambient and is set high enough to energize desired 2nd stage operation.

7. Ensure proper stage is operating by reviewing system thermostat requirements for a second stage call, and the indicator lights provided on the outdoor unit control board show desired operation. See Appendix A for description of operation.

Ensure system diagnostic output LED is energized and beating. See Appendix A Figure 4.

Step 8—Check Charge

UNIT CHARGE

With unit operating, charge system (if necessary) with liquid R410A using a commercial type R410A rated metering device manifold and hose assembly. Charge with refrigerant into suction line charging port. Check charge in heating mode only. Adjust the charge in heating using the following procedure.

NOTE: Unit is to be charged in high capacity only (2nd stage thermostat call).

Note: Above 60° F charge unit using the line set method see Fig 11 Appendix C. You may have to return in heating season and double check charge amount for optimal efficiency.

HEATING CHECK CHARGE PROCEDURE

1. Operate unit a minimum of 30 minutes before checking charge.

2. Measure liquid service valve pressure by attaching an accurate R410A rated gauge to 3/8" service port.

3. Measure liquid line temperature by attaching and insulating an accurate thermistor type or electronic thermometer to the liquid line near the outdoor coil.

4. Refer to charging table for required sub cooling temperatures.

5. To obtain required sub cooling temperature at a specific liquid line pressure, add refrigerant if liquid line temperature is higher than indicated, or reclaim refrigerant if temperature is lower.

NOTE: For every 1 lb of additional refrigerant added, allow a minimum of 30 minutes for the system to settle before taking another sub cooling indication.

You must ensure that you will have a 2nd stage call on the thermostat. Set the thermostat well above indoor air temp and open doors and windows if needed.

Sub cooling for Heating Mode to establish charge

Outdoor Temperature/	Subcooling at the 3/8in Service valve	
0°F and Below	24-30°F	Use Amp Meter on Outdoor unit to insure both compressors are on
0-30°F	30-36°F	Use Amp Meter on Outdoor unit to insure both compressors are on
30-45°F	15-25°F	Use Amp Meter on Outdoor unit to insure only the Primary compressor is on
45-62°F	10-15°F	Use Amp Meter on Outdoor unit to insure only the Primary compressor is on
62°F and above	5-10°F	Use Amp Meter on Outdoor unit to confirm that primary 1cyl is operating amp draw will be low
If only Primary compressor is running use the 30-45° temp range on chart.		

Step 9—Final Checks

IMPORTANT: Before leaving job, be sure to do the following:

1. Ensure that all wiring and tubing is secure in unit before adding panels and covers. Securely fasten all panels / covers and ensure all fasteners remain tight.
2. Tighten service valve stem caps to 1/12-turn past finger tight.
3. Leave manual with owner. Explain system operation and periodic maintenance requirements outlined in manual.
4. Fill out Dealer Installation Checklist and place in customer file.

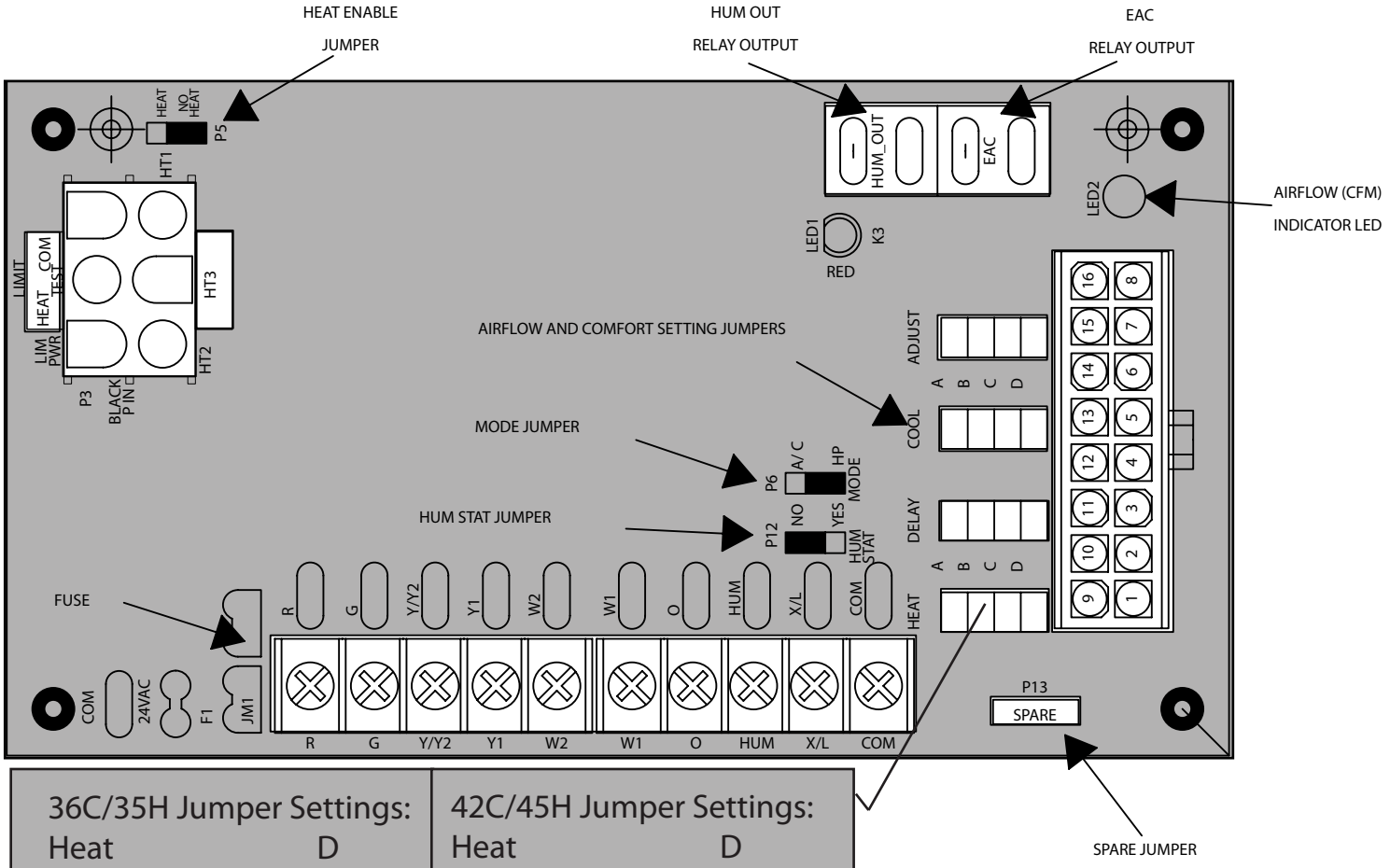
CARE AND MAINTENANCE

For continuing high performance and to minimize possible equipment failure, periodic maintenance must be performed on this equipment. Frequency of maintenance may vary depending upon geographic areas, such as coastal applications. Pay close attention to cleanliness of indoor / outdoor coils and proper duct circultion and sealing.

- Your servicing dealer may offer an economical service contract that covers seasonal inspections. Ask for further details.

Settings

Figure 1 Factory Supplied Air Handler Control Board



36C/35H Jumper Settings:	
Heat	D
Delay	A
Cool	B
Adjust	B

42C/45H Jumper Settings:	
Heat	D
Delay	A
Cool	D
Adjust	B

Hallowell TXV kit installation instructions:

1. Ensure coil has not been exposed to atmospheric pressure for more than 15 minutes.
2. Remove indoor coil inlet cover at the distributor body inlet. Use back-up wrench to prevent damage.
3. Install the TXV to distributor using a back up wrench to prevent damage. Tighten finger tight then turn nut ¼ turn more.
4. Connect equalizer tube of TXV to 1/4-in. equalizer fitting on vapor line. Be sure to remove the Schrader valve located in the fitting on the coil.
5. Install the indoor coil inlet tube. Use back-up wrench to prevent damage.
6. Attach TXV bulb to horizontal section of suction line using bulb strap and insulate.
7. Proceed with remainder of unit installation.
8. Refer to Air Handler installation manual for further installation of unit.

Figure 2 Air Flow Chart For Air Handler:

HIGH SPEED COOLING AND HEAT PUMP AIRFLOW (CFM)					
Model				JUMPER SETTINGS	
36C		48D		Cool	Adjust
CFM	m3/min	CFM	m3/min		
1230	34.8	2020	57.2	A	B
1007	28.5	1759	49.8	B	B
1202	34.0	1989	56.3	A	A
903	25.6	1607	45.5	B	A
1076	30.5	1790	50.7	A	C
965	27.3	1502	42.5	C	B
814	23.0	1439	40.7	B	C
714	20.2	1306	37.0	D	B
868	24.6	1368	38.7	C	A
646	18.3	1218	34.5	D	A
799	22.6	1246	35.3	C	C
604	17.1	1090	30.9	D	C

Note:

- Both the COOL and ADJUST tap must be set for the cooling airflow (CFM).
- Fan only airflow (CFM) = 63% of high speed cooling.
- Low speed cooling used only with two stage outdoor units. (Speed is preset to 65% of cooling speed).
- When operating in both heat pump and electric heat models, the airflow (CFM) will be whichever is greater.
- Airflow (CFM) indicator light (LED2) flashes one for every 100 CFM. (i.e.: 12 Flashes is 1200 CFM).

Figure 3 Electric Heat Airflow Adjustment Taps For Factory Supplied Air Handler

ELECTRIC HEAT AIRFLOW (CFM)		
MODEL		TAP SELECTIONS
36C	48D	HEAT
724	1318	A
657	1142	B
593	927	B
520	673	D

Figure 4 Control Jumpers

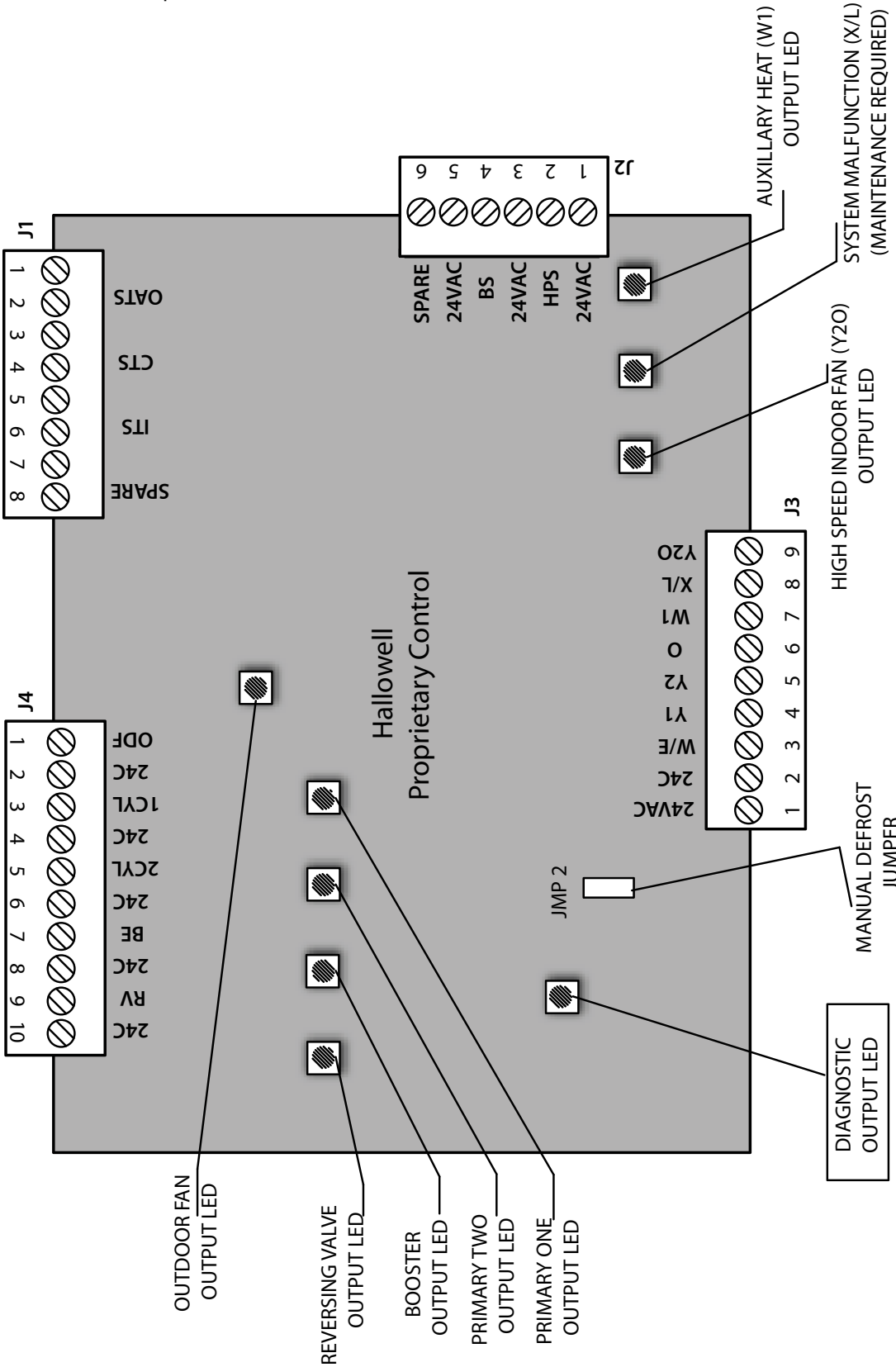


Figure 5 Thermostat Settings

MENU REFERENCE NUMBER	FACTORY DEFAULT SETTING	CORRECT SETTING	COMMENTS
1	MS 2	HP 2	Selects appropriate control style (2 stage heat pump)
2	(GAS)	ELE	Indoor blower control (furnace or thermostat)
3	DAYS (7)	Customer Preference	7 day, 5 day plus weekend, or no program
4	PS (4)	Customer Preference	Program setpoints during each day
5	COOL OFF HEAT AUTO	COOL OFF HEAT (EMER) AUTO	System switchover or operating mode with heating, cool, auto changeover, or off
6	E (ON)	ON	Pre-stage heating/cooling steps to reach desired temp at given time
7	Cr HEAT (FA)	SL	Cycle rate of heating mode
8	Cr COOL (FA)	SL	Cycle rate of cooling mode
9	Cr EMER (FA)	FA	Cycle rate of emergency heat
10	CL (OFF)	ON	Compressor lockout (anti short-cycle)
11	dL (ON)	ON	Display backlight
12	0 (ROOM TEMP)	Pre-Calibrated	Adjust display temp to actual temp
13	° F	Customer Preference	° F or ° C displayed
14	b (ON)	Customer Preference	Keypad beeper on/off
15	HEAT (99)	80 ° F or lower	Heating mode upper limit
16	COOL (45)	65 ° F or higher	Cooling mode lower limit
17	KEYPAD LOCKOUT (L)	Customer Preference	Keypad lockout function
18	KEYPAD LOCKOUT (OFF)	Customer Preference	Turn keypad lockout on/off
19	FA HEAT (ON)	ON	Heat 2nd stage cycle rate
20	FA COOL (ON)	ON	Cool 2nd stage cycle rate
21	CHANGE FILTER (OFF)	ON (720 hours)	Indoor air filter change timer 25 – 1975 hours 25 hour steps
22	CHANGE HUMIDIFIER (OFF)	ON (IF APPLICABLE)	Humidifier pad change timer 25 – 1975 hours 25 hour steps

1) **Controlled System Type:**
This control can be adapted for many uses; however operation of the Hallowell ACHP requires the **HP2** setting.

2) **Indoor Fan Operation:**
GAS or Electric (ELE) fan operation. The system requires the thermostat to energize the indoor fan. If a separate heating system controls the fan, select **GAS**.

3) **Programming:**
This control can be setup to run individual programs for each day of the week, or a 5-day block with separate weekend parameters.

4) **Program Setpoints:**
This control can be programmed with 2 or 4 setpoints during the day.

5) **System Switch Configuration:**
This control can be setup to run in **Heat** mode, **Cooling** mode, **Heat and Cool** with auto changeover, and **Emergency Heating** mode.

6) **Energy Management Recovery:**
This control can make use of Energy Management Recovery (EMR) strategies, in which the system will be brought online early to ensure the program setpoint is reached at the specified time. Heating will start 5 minutes early for each 1˚ required to reach the setpoint. This setting is bypassed if the system is in 0-day programming.

7, 8, 9) **Cycle Rate Selection:**
Recommended: SL; Slow cycle, cycles heat at approximately 1.2 °F. Cooling mode cycles at 1.7 F. Hallowell recommends these settings to optimize the system for efficiency by minimizing unit cycling. If a faster recovery rate is desired (heat .6 °F, cool 1.2 °F) select FA. Choosing FA will yield reductions in efficiency and increased unit cycling.

10) **Compressor Lockout:**
This control has a built in 5 minute timer between cooling cycles. This lockout should be ON to help prevent compressor short-cycling.

11) **Display Backlight:**
When this option is turned ON, the display backlight will remain illuminated continuously, improving low-light visibility. When this option is turned OFF, the display backlight will illuminate briefly after any keypress.

12) **Temperature Display Adjustment:**
This option is used to adjust the displayed temperature to match your previous thermostat. The range of adjustment is 4˚ higher or lower.

13) **Degree Readout:**
Select the desired temperature readout, F˚ or C˚.

14) **Beeper On/Off:**
Turn the keypress beeper On or Off.

15) **Heat Temperature Limit:**
The highest allowable temperature for Heating mode may be changed here. The allowable range for the Hallowell ACHP is 62 ˚F to 80˚F. When this is active, the "temperature limit" icon is displayed to the left of the setpoint temperature, and if an attempt is made to adjust the setpoint above the limit, the "temperature limit" icon will flash.

16) **Cool Temperature Limit:**
The lowest allowable temperature for Cooling mode may be changed here. The allowable range for the Hallowell ACHP is 65 ˚F to 85˚F. When this is active, the "temperature limit" icon is displayed to the left of the setpoint temperature, and if an attempt is made to adjust the setpoint below the limit, the "temperature limit" icon will flash.

17) **Keypad Lockout:**
A keypad lockout is available to prevent undesired temperature and mode changes. This is a three stage lockout, consisting of:
- **Keypad Lockout and L:** Total lockout, preventing any temperature and/or mode changes.
- **Keypad Lockout and P:** Partial lockout, allowing temperature changes within the set temperature limits.
- **Temperature Limit/Keypad Lockout:** Prevention of changing the set temperature limits.

18) **Keypad Lockout Combination:**
This menu item is used to select the 3 digit key-code to disable the keypad lockout, and to turn the lockout On or Off. Use the→and← keys to select your keypad lockout combination (000 is not a valid lockout combination). When finished, press↑to exit the menu. The system mode key will remain active for 10 seconds allowing a mode change.

In the event the combination is lost, press and hold the menu button for 20 seconds to unlock the thermostat.

19, 20) **Fast Second Stage:**
This should be set to FA Heat/Cool ON
When in run mode, and with the Fast Heat (FA Heat ON) enabled, if the Heat setpoint is manually raised by 3˚F or more above the actual temperature, the 2nd stage shall energize immediately. If FA Heat is Off, the 2nd stage will not energize until the setpoint is 1˚F or more above the actual temperature for 10 minutes. For FA Cool, the operation is the same, only for a cooling operation.

21) **Filter Replacement Run Time:**
This provides a reminder to change the air handler filter as a function of indoor fan runtime. This should be set to 725 hours (once a month), unless otherwise recommended.

22) **Humidifier Pad Replacement Run Time:**
This provides a reminder to change the humidifier pad (if so equipped), based on heating mode run time.

Wiring Diagrams

Figure 6 Line Voltage

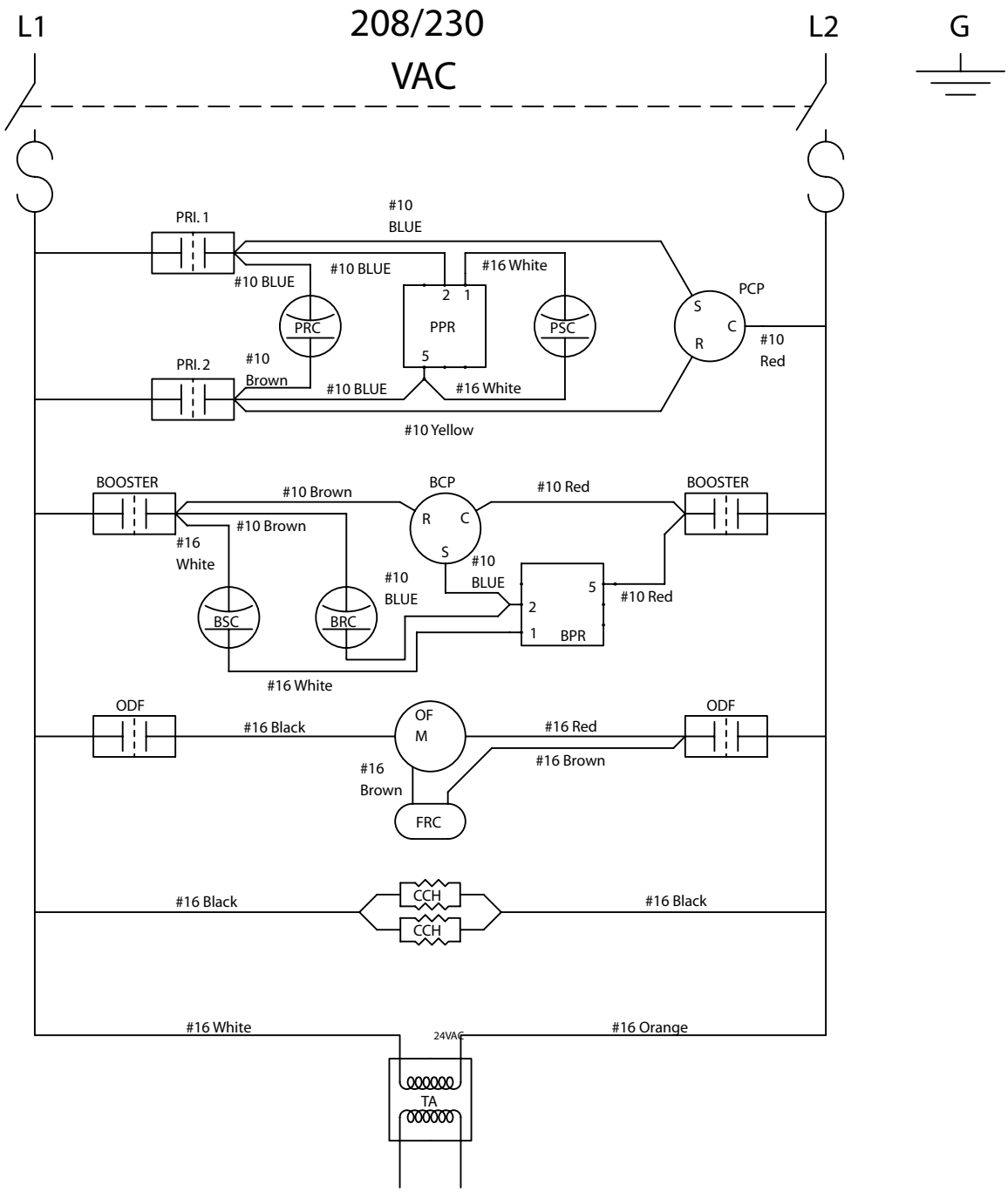


Figure 7 Proprietary Control

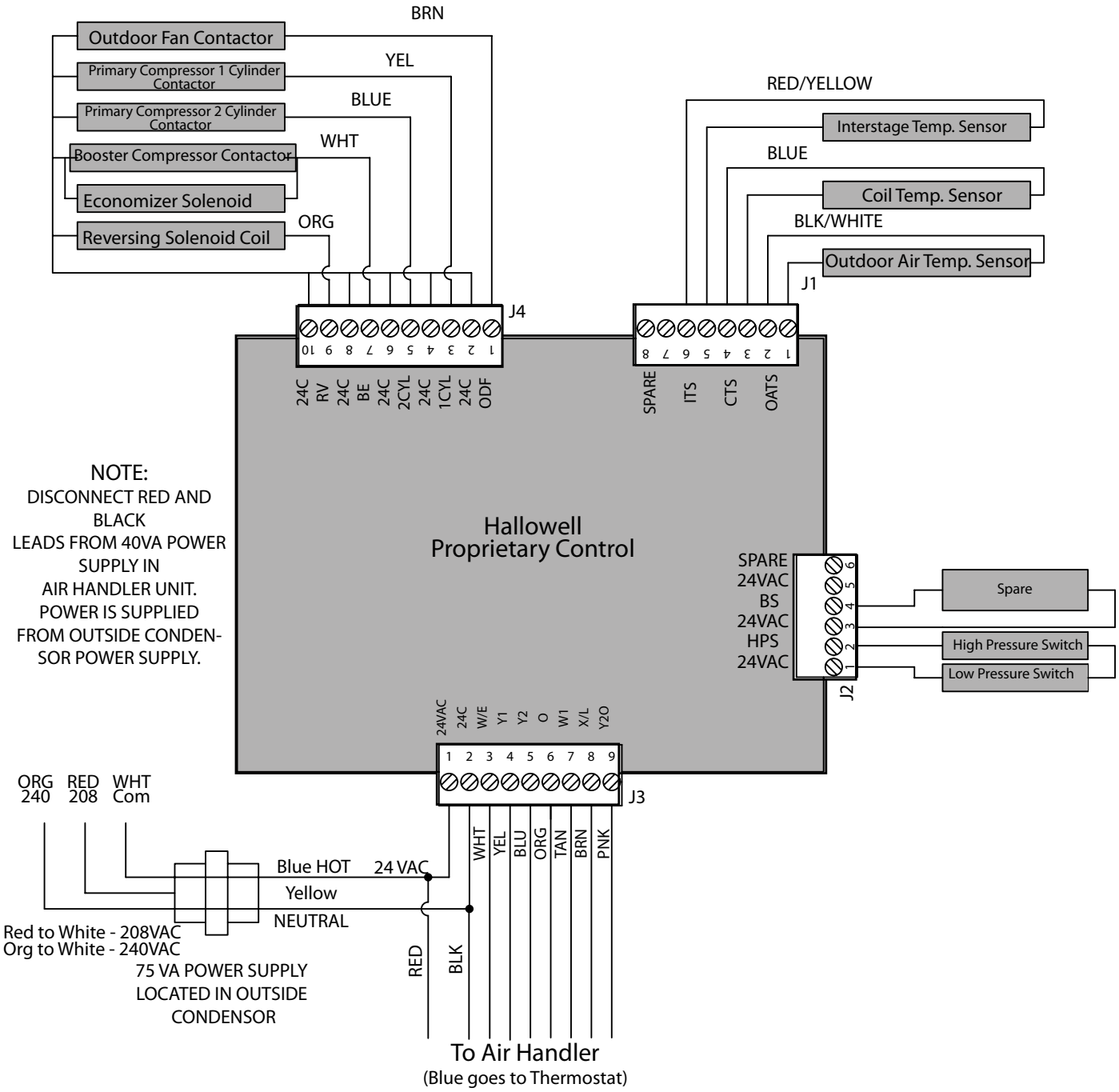


Figure 8 Air Handling Unit

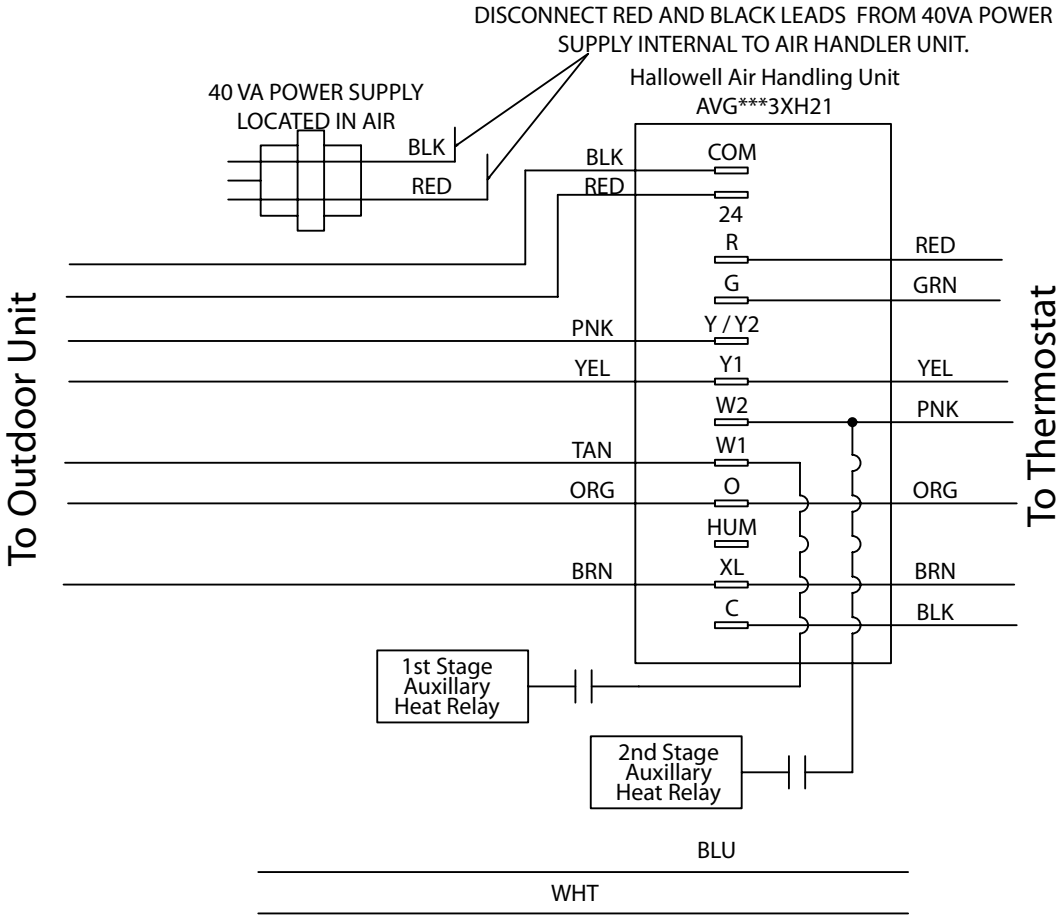
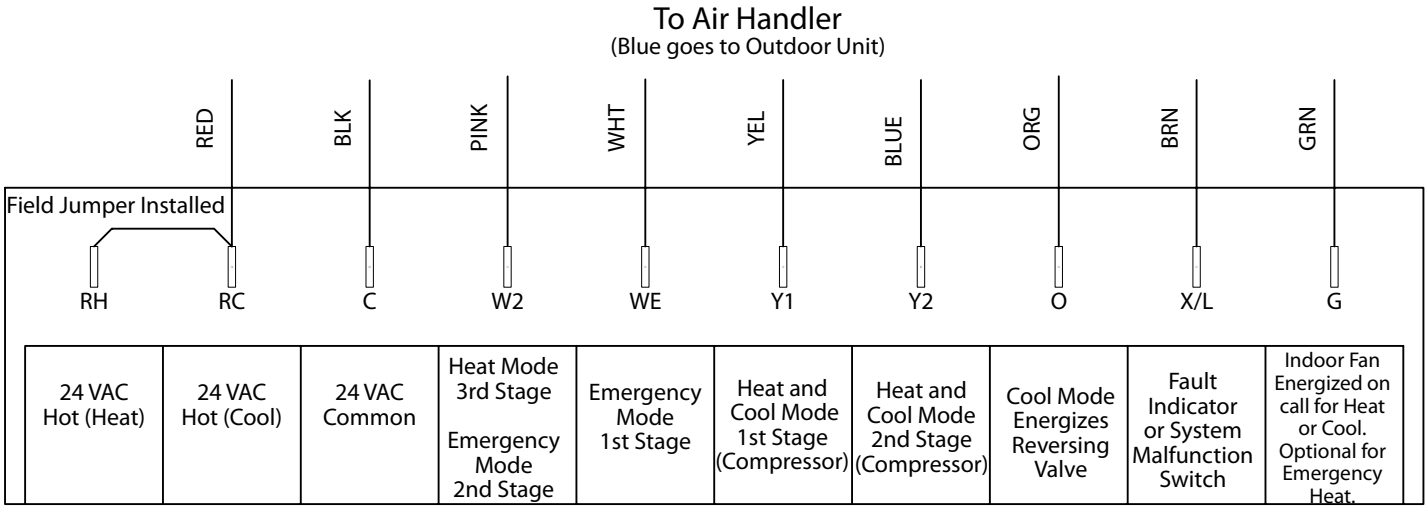
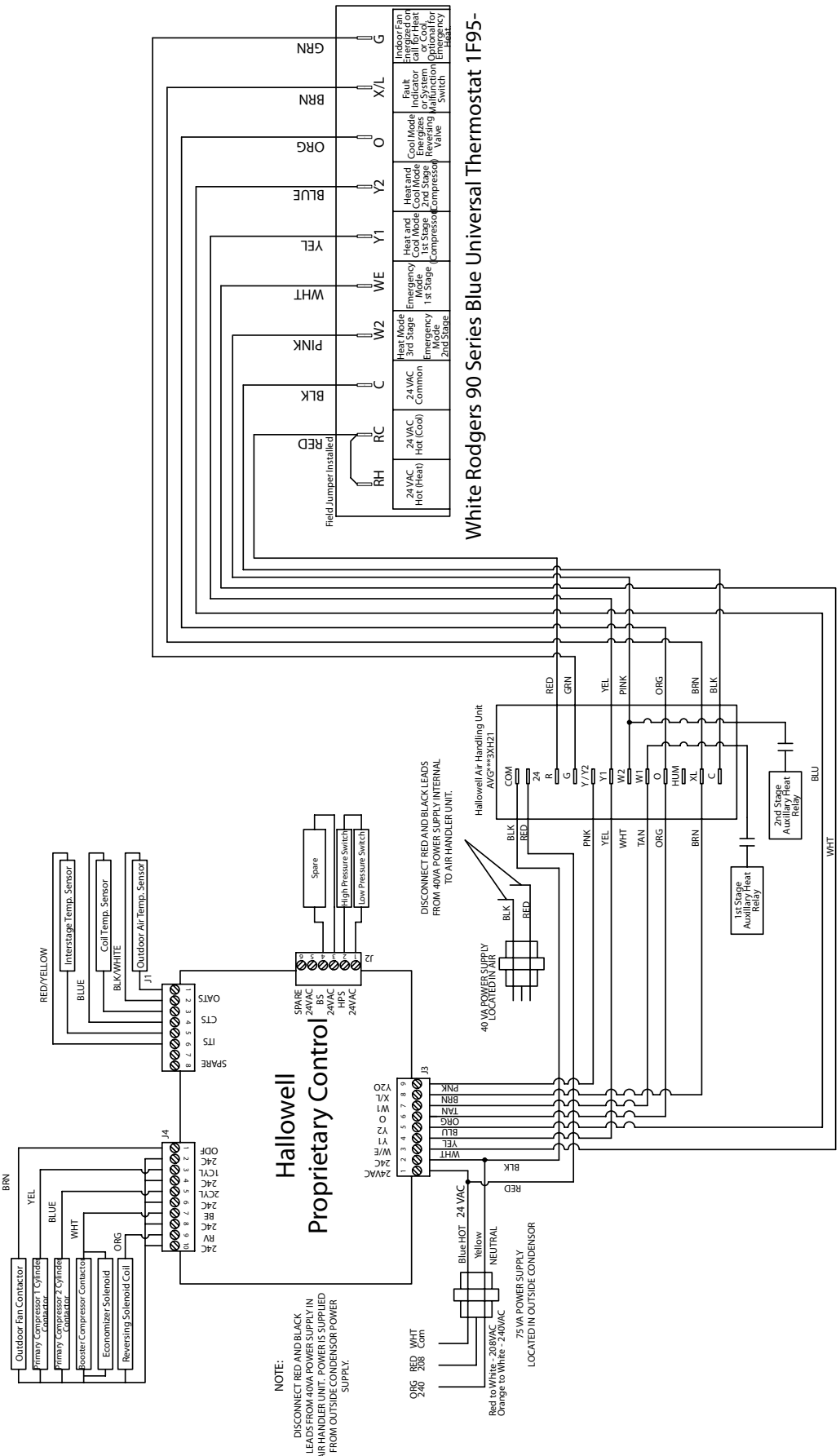


Figure 9 Thermostat



White Rodgers 90 Series Blue Universal Thermostat 1F95-1206

Figure 10 Entire Control



R410A/Charging Charts

Figure 11 Hallowell Acadia Line Chart

Hallowell ACHP Line Set Charging Chart			
Line set length in feet	**Initial charge of R410A**	**Line set length in feet**	**Initial charge of R410A**
0-10	12lbs		
11	12lbs - 0.6oz	31	12lbs - 12.6oz
12	12lbs - 1.2oz	32	12lbs - 13.2oz
13	12lbs - 1.8oz	33	12lbs - 13.8oz
14	12lbs - 2.4oz	34	12lbs - 14.4oz
15	12lbs - 3.0oz	35	12lbs - 15oz
16	12lbs - 3.6oz	36	12lbs - 15.6oz
17	12lbs - 4.2oz	37	13lbs - 0.2oz
18	12lbs - 4.8oz	38	13lbs - 0.8oz
19	12lbs - 5.4oz	39	13lbs - 1.4oz
20	12lbs - 6.0oz	40	13lbs - 2.0oz
21	12lbs - 6.6oz	41	13lbs - 2.6oz
22	12lbs - 7.2oz	42	13lbs - 3.2oz
23	12lbs - 7.8oz	43	13lbs - 3.8oz
24	12lbs - 8.4oz	44	13lbs - 4.4oz
25	12lbs - 9.0oz	45	13lbs - 5.0oz
26	12lbs - 9.6oz	46	13lbs - 5.6oz
27	12lbs - 10.2oz	47	13lbs - 6.2oz
28	12lbs - 10.8oz	48	13lbs - 6.8oz
29	12lbs - 11.4oz	49	13lbs - 7.4oz
30	12lbs - 12oz	50	13lbs - 8.0oz

Figure 12 Hallowell Acadia Charging Chart

Hallowell ACHP Charging Chart					
	Sub-cooling	**Liquid line temp**	**3/8" service valve psig**	**7/8" Service Valve psig**	**Charging port psig**
60-50°F	12-15°F	90-100°F	326-390psi	330-400psi	110-160psi
50-40°F	13-18°F	80-90°F	288-354psi	290-365psi	87-142psi
40-30°F	18-25°F	75-85°F	280-340psi	282-350psi	69-118psi
30-20°F	30-35°F	70-80°F	316-390psi	318-400psi	140-170psi
20-10°F	30-36°F	70-80°F	316-400psi	318-410psi	110-140 psi
10-0°F	30-36°F	70-80°F	316-400psi	318-410psi	90-110 psi
0- neg10°F	20-30°F	70-80°F	276-366psi	278-376psi	70-110
neg10-neg20°F	20-30°F	70-80°F	276-366psi	278-376psi	60-100 psi
neg 20-neg30°F	15-30°F	70-80°F	255-366psi	255-376psi	50-90 psi
Check subcooling in 2nd stage of heating operation only					

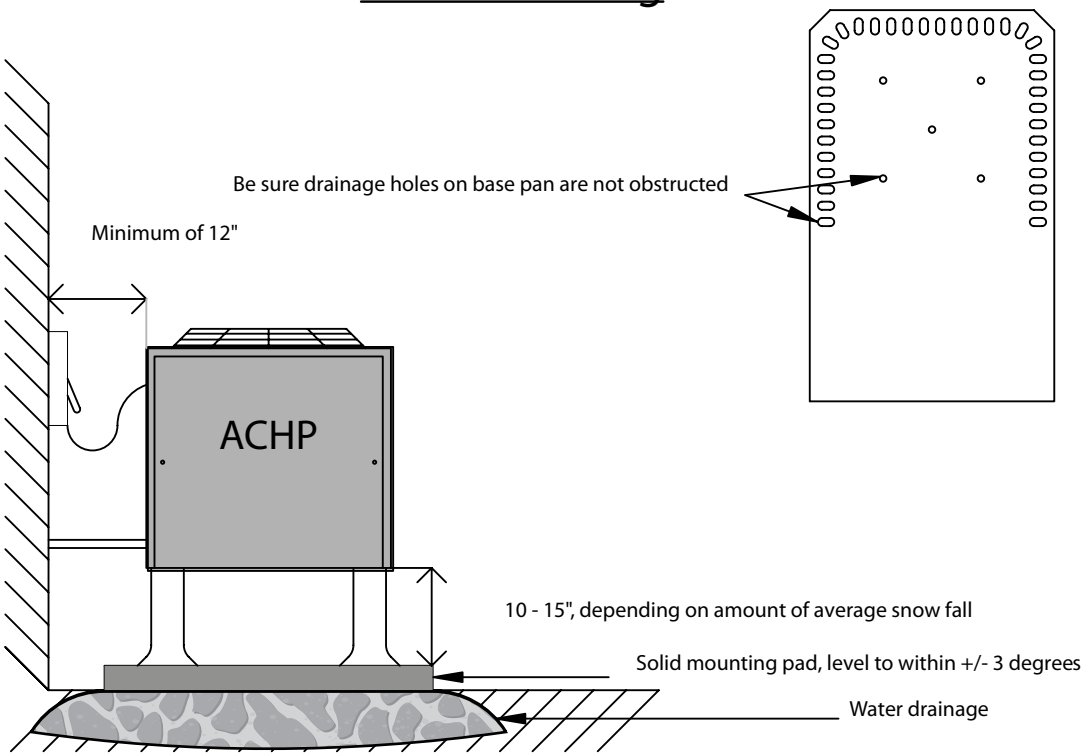
Figure 13 Pressure Temperature Chart R410A

psig	F°	psig	F°	psig	F°	psig	F°	psig	F°	psig	F°	psig	F°	psig	F°	psig	F°
		40	-7	82	22	124	42	192	67	276	90	360	109	444	125	528	138
		41	-6	83	23	125	43	194	68	278	91	362	109	446	125	530	138
0	-61	42	-5	84	23	126	43	196	68	280	91	364	110	448	125	532	139
1	-59	43	-4	85	24	127	44	198	69	282	92	366	110	450	126	534	139
2	-56	44	-4	86	24	128	44	200	70	284	92	368	111	452	126	536	139
3	-54	45	-3	87	25	129	45	202	70	286	93	370	111	454	126	538	140
4	-52	46	-2	88	25	130	45	204	71	288	93	372	111	456	127	540	140
5	-50	47	-1	89	26	131	45	206	72	290	94	374	112	458	127	542	140
6	-48	48	0	90	26	132	46	208	72	292	94	376	112	460	127	544	140
7	-46	49	0	91	27	133	46	210	73	294	95	378	113	462	128	546	141
8	-45	50	1	92	27	134	47	212	73	296	95	380	113	464	128	548	141
9	-43	51	2	93	28	135	47	214	74	298	96	382	113	466	128	550	141
10	-41	52	3	94	28	136	47	216	74	300	96	384	114	468	129	552	142
11	-40	53	3	95	29	137	48	218	75	302	97	386	114	470	129	554	142
12	-38	54	4	96	29	138	48	220	76	304	97	388	114	472	129	556	142
13	-37	55	5	97	30	139	49	222	76	306	97	390	115	474	130	558	142
14	-35	56	6	98	30	140	49	224	77	308	98	392	115	476	130	560	143
15	-34	57	6	99	31	142	50	226	77	310	98	394	116	478	130	562	143
16	-33	58	7	100	31	144	51	228	78	312	99	396	116	480	131	564	143
17	-31	59	8	101	32	146	51	230	78	314	99	398	116	482	131	566	144
18	-30	60	8	102	32	148	52	232	79	316	100	400	117	484	131	568	144
19	-29	61	9	103	33	150	53	234	80	318	100	402	117	486	132	570	144
20	-27	62	10	104	33	152	54	236	80	320	101	404	117	488	132	572	144
21	-26	63	10	105	34	154	54	238	81	322	101	406	118	490	132	574	145
22	-25	64	11	106	34	156	55	240	81	324	101	408	118	492	132	576	145
23	-24	65	12	107	35	158	56	242	82	326	102	410	119	494	133	578	145
24	-23	66	12	108	35	160	56	244	82	328	102	412	119	496	133	580	146
25	-22	67	13	109	36	162	57	246	83	330	103	414	119	498	133	582	146
26	-20	68	14	110	36	164	58	248	83	332	103	416	120	500	134	584	146
27	-19	69	14	111	37	166	59	250	84	334	104	418	120	502	134	586	146
28	-18	70	15	112	37	168	59	252	84	336	104	420	120	504	134	588	147
29	-17	71	16	113	38	170	60	254	85	338	104	422	121	506	135	590	147
30	-16	72	16	114	38	172	61	256	85	340	105	424	121	508	135	592	147
31	-15	73	17	115	38	174	61	258	86	342	105	426	121	510	135	294	147
32	-14	74	17	116	39	176	62	260	86	344	106	428	122	512	136	596	148
33	-13	75	18	117	39	178	63	262	87	346	106	430	122	514	136	598	148
34	-12	76	19	118	40	180	63	264	87	348	107	432	122	516	136	600	148
35	-11	77	19	119	40	182	64	266	88	350	107	434	123	518	137		
36	-10	78	20	120	41	184	65	268	88	352	107	436	123	520	137		
37	-10	79	20	121	41	186	65	270	89	354	108	438	124	522	137		
38	-9	80	21	122	42	188	66	272	89	356	108	440	124	524	137		
39	-8	81	21	123	42	190	67	274	90	358	109	442	124	526	138		

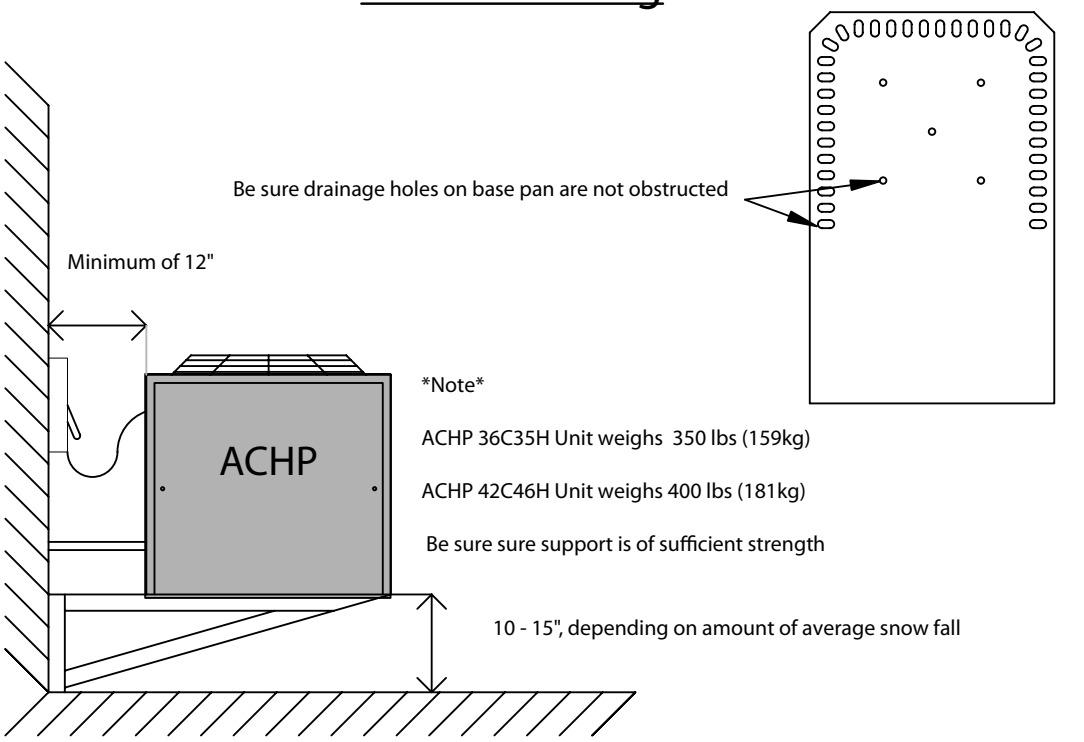
Outdoor Unit Mounting

Figure 14 Outdoor Unit Mounting

Slab Mounting


Be sure drainage holes on base pan are not obstructed
Minimum of 12"
ACHP
10 - 15", depending on amount of average snow fall
Solid mounting pad, level to within +/- 3 degrees
Water drainage

Wall Mounting


Be sure drainage holes on base pan are not obstructed
Minimum of 12"
ACHP
Note
ACHP 36C35H Unit weighs 350 lbs (159kg)
ACHP 42C46H Unit weighs 400 lbs (181kg)
Be sure sure support is of sufficient strength
10 - 15", depending on amount of average snow fall

FOR THE RECORD

Record the model, product, and serial numbers of your new equipment in the spaces provided on the last page of this manual. This information, along with the other ready-reference facts requested will be necessary should you ever require information or service.

INSTALLATION DATA

Date Installed_____

Dealer Name_____

Address_____

City_____

State Zip_____

Telephone_____

SPLIT-SYSTEM

Outdoor Unit:_____

Product No._____

Model No._____

Serial No._____

Indoor Unit or Coil:_____

Product No._____

Model No._____

Serial No._____

This limited warranty is offered for a period of 5 YEARS by Hallowell International to the original purchaser and to any owner thereafter of the property to which the Hallowell Acadia is originally manufactured. This limited warranty applies to Hallowell International products which are installed, purchased and maintained for use within the United States and Canada only. * This limited warranty is valid only for residential use of the Hallowell Acadia and is not applicable when used for a commercial application without written authorization. A commercial application is any use where the owner utilizes the product for other than personal, family or single household purposes.

Applications other than of air-to-air residential heating and cooling are not allowed without specific written authorization from an officer at Hallowell International. Failure to obtain this authorization before installation will void the terms of this limited warranty.

Within 5 years of the date of original purchase of the Hallowell All Climate Heat Pump, a replacement part will be provided, without charge for the part only, in the event of the following terms:

1. Any internal operating part of the Hallowell Acadia failing because of a manufacturing defect under normal use and maintenance within 5 years from the date of original purpose.

2. Compressor failure occurring because of a manufacturing defect within 5 years from the date of original purchase.

3. The outdoor coil should become defective because of a manufacturing defect within 5 years from the date of original purchase.

ANY FREIGHT CHARGES, SERVICE CALLS AND LABOR COSTS, REFRIGERANT AND/OR ANY OTHER ITEM THAT IS DIRECTLY SPECIFIC TO THE INSTALLATION OR REPAIR OF THE DEFECTIVE PART ARE NOT INCLUDED IN THIS LIMTED WARRANTY.

ANY PART OF THE HALLOWELL ACADIA THAT IS REPLACED WILL BE WARRANTED ONLY FOR THE UNEXPIRED PORTION OF THE WARRANTY TERM APPLYING TO THE ORIGINAL PRODUCT.

This limited warranty will not cover any failure of the Hallowell All Climate Heat Pump if it is damaged while in possession of the purchaser, damaged caused by unwarranted usage, and/or damaged from failure to correctly maintain the Hallowell All Climate Heat Pump as set forth in the Owner's Manual (see Proper Maintenance section) that is accompanied with the original purchase.

FAILURE TO INSTALL THE HALLOWELL ACADIA BY AN AUTHORIZED HALLOWELL INTERNATIONAL SERVICE AGENT AND/OR AS SPECIFIED IN THE OWNER'S MANUAL WILL VOID THE TERMS OF THIS LIMITED WARRANTY. HALLOWELL INTERNATIONAL IS NOT RESPONSIBLE FOR ANY DAMAGE CAUSED BY IMPROPER INSTALLATION.

THIS LIMITED WARRANTY AND LIABILITY SET FORTH ARE IN LIEU OF ALL OTHER WARRANTIES AND LIABILITIES, WHETHER IN CONTRACT OR IN NEGLIGENCE, EXPRESS OR IMPLIED, IN LAW OR IN FACT, INCLUDING BUT NOT SPECIFICALLY LIMITED TO IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR PARTICULAR USE, AND IN NO EVENT SHALL HALLOWELL INTERNATIONAL BE LIABLE FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES, INCLUDING BUT NOT LIMITED TO ADDITIONAL UTILITY EXPENSES OR DAMAGES TO PROPERTY.

Some states do not allow limitations on how long an implied limited warranty lasts or do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you. This limited warranty gives you specific legal rights and you may also have other rights which will vary from state to state.

Hallowell International will not be held responsible in the event of any/all of the following:

1. Damage or repairs as a result of floods, winds, lightning, fires, accidents or any other conditions beyond the control of Hallowell International.

2. Damage or repairs due to faulty installation or application.

3. Damage, repairs or installation due to a non-authorized Hallowell International service agent.

4. The use of components non-compatible with the Hallowell All Climate Heat Pump.

5. Failure to conduct normal or routine maintenance as described in the Owner's Manual.

6. Damage of repairs in result of improper use, operation or service.

7. Products installed outside the United States or Canada.

ANY MODIFICATIONS TO THE EQUIPMENT OR INSTALLATION PROCEDURES AS LAID OUT IN THE OWNER'S MANUAL WILL VOID THIS LIMITED WARRANTY WITHOUT THE WRITTEN CONSENT OF AN OFFICER OF HALLOWELL INTERNATIONAL.

Replacement parts will be provided by Hallowell International through an authorized service provider in your area. If you need assistance regarding this limited warranty, please contact your local service agent.

INSTALLATION MANUAL

Visit our website for more information:
www.gotohallowell.com

We Encourage Professionalism

Through Technician Certification by NATE